

prepared by:

The State of North Carolina
Department of Natural Resources and
Community Development
Division of Parks and Recreation
Master Planning Unit
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STATE LAKES MASTER PLAN

FOREWORD

The Bay Lakes region of North Carolina is among the few of the State's unique natural features to receive worldwide attention. Although the bay phenomenon stretches from southern Virginia to Georgia, it is exceptional in Bladen County, North Carolina. Here, an aerial view provides a spectacular perspective of the unusual oval-shaped bays whose origin, despite much study and investigation, is yet a mystery to scientists.

In addition to their scientific importance, the Bay Lakes have played a significant role in the region's recreational opportunities since the State secured the lakes early in this century. In particular, Jones Lake, Singletary Lake, and White Lake provide diverse facilities for water and land-based recreation.

Despite these attributes, the region has been overlooked for some time with respect to the development of a comprehensive public parks program. The

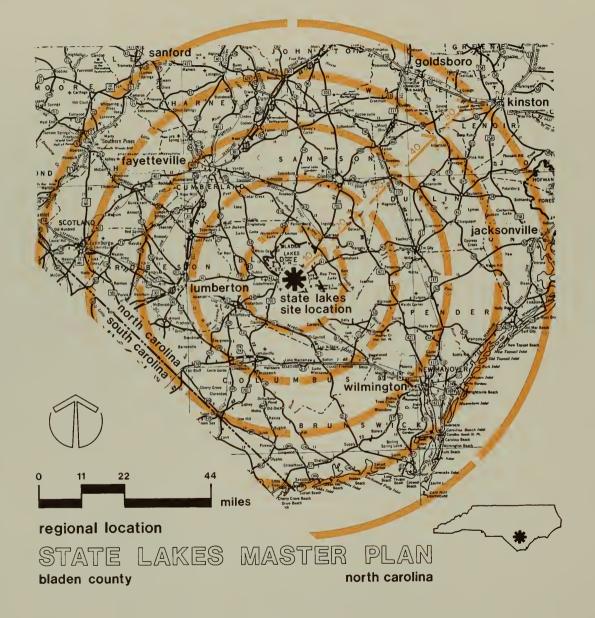
State has missed opportunities for acquiring land and the lakes have gone without much-needed planning and funding. Not only has public access to some of the lakes been limited, but existing use is unbalanced to the detriment of the natural resources.

Within this context, the Master Plan has prepared a general strategy and suggested policy for the physical development of the State Lakes. The principal purpose of the Master Plan has been to study the lakes comprehensively, viewing the relationship and balance of uses between the lakes. In addition to general policies for development, the Master Plan sets out more detailed site development programs and project phasing. In the future, project development will be contingent on the availability of funds and the establishment of biennial statewide priorities.



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REGIONAL CONTEXT

The State Lakes considered in this Master Plan include Bay Tree Lake, Jones Lake, Salters Lake, Singletary Lake, White Lake, and Bushy Lake. All but Bushy Lake contain open water and are generally suitable for water-oriented recreational activities. Bushy Lake is an excellent example of a "low bay." Considerably more advanced in the natural filling process than the other lakes, Bushy Lake contains shallow standing water much of the year, and is covered in low shrub vegetation and a variety of grasses.

Location and Access

The Carolina Bays are situated in the eastern coastal plain of North Carolina, concentrated in the southeastern part of the state. With the exception of Bushy Lake, located on the southern edge of Cumberland County, all of the State Lakes are in Bladen County.

U. S. Highway 701 is the principal access to the region. It begins at Interstate Highway 95 southeast of Raleigh and extends through the region south toward Georgetown, South Carolina. The highway carries in excess of 2,000 cars daily through Elizabethtown. U.S. 701 is the primary regional highway as well as the principal local access to White Lake.

From east to west, N.C. Highway 41/87 is a regional connector between Wilmington and Interstate 95 at Lumberton. Generally, it carries more than 2,000 cars daily through the county. Secondary road connector N.C. 41 runs northeast from U.S. 701 at White Lake, passing by Bay Tree Lake. N.C. 53 runs southeast from White Lake, providing access to Singletary Lake. Jones Lake and Salters Lake are accessible from N.C.

242, which extends northwest from its intersection with U.S. 701 and N.C. 53. Access to Bushy Lake is gained from either N.C. 53 or S.R. 1002.

Population

A little more than 600,000 people reside within a 50-mile radius of the State Lakes. Population centers within the 50-mile radius include the Fayetteville/Fort Bragg area, Lumberton, 25 miles west of Elizabethtown, and Wilmington, nearly 50 miles east. Raleigh is located about 91 miles northwest of the State Lakes, and Goldsboro is situated 60 miles north.

A comparison of the population base of the State Lakes region to some other State Parks is as follows:

	POPULATION	% STATE
State Lakes	603,728	11.87
Eno River	966,830	18.33
Stone Mountain	171,993	3.43
Goose Creek	393,629	7.46
William B. Umstead	900,000	17.06

Between 1960 and 1970, the population trend of Bladen and most other nearby counties was characterized by a net loss due to out-migration. However, beginning about 1970 a general reversal in the migration trend occurred resulting in an increasing population. Current projections show a population increase of almost 6% by 1980 as compared to 1975. In the meantime, professional, managerial and clerical occupations are expected to increase more than 30% while agriculturally-related employment is expected to continue its current downward trend.



History

During the legislature of 1827 - 1828, a public interest in the State Lakes was first established. At this time it became unlawful for "any entry taker (deed recorder) to receive any entry or entries of land now covered by the waters of any of the lakes of the State." This law followed the limitation of entries for unappropriated marsh or "swamplands" enacted during the previous legislature.

The legislature of 1911, Chapter 8; G.S. 7544 provided that "White Lake, Black Lake, Waccamaw Lake, and any other lake in Bladen, Columbus, or Cumberland Counties containing 500 acres or more shall never be sold nor conveyed to any person, firm or corporation, but shall always be and remain the property of the State of North Carolina for the use and benefit of all the people of the State." This law was amended in 1929 to include all State-owned lakes having 50 acres or more and charged the Department of Conservation and Development with administrative responsibility of these newly established recreation areas.

Subsistence in the Bay Lakes region has been marginal, at best. The area was first settled during the late Colonial Period, and for approximately 100 years thereafter landowners practiced subsistence farming along the river lowlands and creek bottoms, and sold naval stores from the long leaf pines which were then prolific in the area. Due to an influx of laborers (working in the turpentine, lumber and cotton industries), the population soon increased beyond the soil's capacity to support it. With the fall of the cotton farmer and the exhaustion of the tar, pitch, turpentine, and timber industry, a large segment of the population found themselves on submarginal land by 1935, with no means of moving into an area of greater productivity.

During the period of 1936-1939, the Bladen forest area was managed by the Resettlement Administration. In 1936, the National Park Service working with the N.C. Department of Conservation and Development created a Civilian Conservation Corps (CCC) camp to provide emergency work for depressed

areas. Use of the CCC Program made possible the construction of miles of truck trails, the establishment of game refuges, and the development of Jones and Singletary Lakes' recreational centers. An organized group camp facility, a maintenance area, and residence were built at Singletary Lake.

The Federal Government purchased the land at Singletary Lake at an average cost of \$4.51 per acre, under the provision of the Bankhead-Jones Farm Tenant Act of 1937. This act authorized the U.S. Secretary of Agriculture to develop a program of land conservation and utilization. Under a cooperative and license agreement signed by the Secretary of Agriculture, and the Director of the N.C. Department of Conservation and Development in 1940, the property was turned over to the latter Department effective July 1, 1939, for administration and operation under a lease agreement. Several years later, in October 1954, the entire area was given to the State of North Carolina by the Federal Government. The Jones, Salters, and Singletary Lake areas became identified as Jones Lake State Park and Singletary Lake Group Camp, administered by the Division of State Parks.

Jones Lake was known earlier as Woodward's Lake for Samuel Woodward, a local Justice of the Peace in 1734. It was probably renamed for Isaac Jones who owned adjacent property shortly thereafter. Singletary Lake was named for Richard Singletary who received a grant of land in Bladen County in 1729.

White Lake

White Lake was first surveyed in the Fall of 1927, and first appeared by that name on the Shaffer Township Map in 1886. Earlier it had been known as Granston Lake according to the Collet Map of 1770 and later as Bartram Lake for William Bartram who owned property and operated a grist mill near the lake. It first attracted tourists and outside interest about 1922 after road access was provided. Due to its clear water and sandy

bottom (in contrast to the other bay lakes), White Lake has always been the most popular of the State Lakes. As a result, business activity and development catering to seasonal tourism has continued to grow. A vast majority of land lying at the edge of White Lake is in private ownership. There is, in fact, no land set aside for public park purposes so that access to the Lake for the general public is limited to that provided through privately owned business establishments.

The increasing use and popularity of White Lake during the early 1940's caused the enactment of the first State Lakes Regulations in 1943. In these regulations, a permit system was established for the construction of piers and other structures. These regulations were administered by State Parks which, at that time, was a branch of the State Forestry Division. Since 1943, the State Lakes Regulations have been rewritten three times; in 1956, 1969, and 1974, with regulations pertaining to structures in the lakes, in particular, becoming more stringent.

During the late 1960's, problems relating to the construction of piers and bulkheads, congestion, and safety increased rapidly as the Town of White Lake experienced increased use and development. As a result, the Board of Conservation and Development adopted a resolution at its July, 1971, meeting instituting a six-month moratorium on the issuing of permits for lake structures. A stated purpose of the moratorium was to encourage local authorities to enact land use ordinances necessary to help alleviate problems associated with White Lake. By this time, more than 200 piers and other structures had proliferated along the lake edge. Largely as a result of this moratorium, the Town of White Lake adopted a zoning ordinance in October, 1972.

Despite these measures White Lake continues to suffer from overuse, shoreline damage, and decreased water quality. As land costs rise and the lake edge becomes further developed it will become increasingly important to develop guidelines or controls specifically aimed at lake usage. A detailed study of

lake management is required which could serve to influence future amendments to State Lake regulations.

Bay Tree Lake

In January, 1965, a private land development group obtained from Fleetlyn Corporation and others an option to purchase several tracts of land consisting of approximately 14,000 acres completely surrounding Black Lake. The intent of the group was to develop a private, inland resort based on the 1,400-acre lake. In March of that year, the group made an official request for the drainage of Black Lake to officials of the North Carolina Department of Conservation and Development. The proposal was aimed at determining the feasibility of improving the quality of the water and lake bottom for recreational purposes.

Permission to lower the water level of Black Lake by four feet was granted in the Fall, 1965, following the recommendations of the Wildlife Resources Commission. In January, 1966, the developers requested permission to completely drain the lake. The purpose of the operation was to remove all tannic waters from the lake, and to intercept black water draining into the lake from adjacent swampland by cutting a ditch around the complete circumference of the lake. Instead of draining into the lake, swamp waters were diverted directly to a drainage pattern below the lake drain. The developers' plan for improving Black Lake was based largely on the observations of scientists who had studied the bay lake phenomenon and the differences between the lakes; that is, that the main difference between the black water lakes and White Lake was that White Lake was the only bay lake draining to the northwest rather than the usual southeasterly pattern. It was observed that as a result of this difference tannic waters and organic material was not carried across the lake but contained to the northwestern edge thereby giving White Lake its clear water.

Drainage of the lake was completed in late February, 1966. Over the next five years, the lake remained dry while the

developers removed stumps and lake debris and imported large quantities of white sand which was distributed around the complete lakeshore to cover existing organic material and form a new beach strand. By the middle of 1970 the drainage outlet was closed and the lake began refilling.

By early 1972, the lake had nearly reached its original level and remained clear. At a meeting of the Board of Conservation and Development, the name of Black Lake was officially changed to Bay Tree Lake and the lake developers, Bay Lakes Corporation, announced extensive plans for the resort development. Included in the plans was a residential layout consisting of 3,000 single family dwelling lots surrounding the lake and multifamily residential and commercial facilities. Residential areas were shown to have direct access to either one of three golf courses or water frontage along the lakeshore or canal system. Bay Tree Lake Corporation began selling lots in mid-1972.

A mysterious breach of the lake rim occurred shortly after residential sales began. Tannic waters were allowed to enter the lake and although the breach was repaired within 24 hours after its occurrence it had the effect of returning the water to its original condition—approximating the color of tea. This condition remains to the present day.

During its negotiations with the State, Bay Lakes Corporation was made aware of the need for public lands and access to be provided at the lake. The Corporation subsequently offered to the State a gift of 90 acres on the lake's northwest edge which would provide about a 1,000-foot wide corridor to the lake. The condition of this land was poor, being made up almost entirely of low-lying bog. The State was also shown approximately 450 acres of upland located to the north of N.C. Highway 41 which would be made available for purchase by other owners. The donation of land offered by the Corporation has not been accepted due to a reversion clause requiring that the land be developed for public recreation within two years of the gift. Nevertheless, the agreement for 90 acres is binding and will be

executed at such time as the land can be effectively incorporated into the State Lake's management program. At the present time, the State continues to own no land at Bay Tree Lake.

Bushy Lake

Despite the early legislation which protected unclaimed swamplands in the State, little public attention was paid to Bushy Lake until the late 1960's. At that time, local landowners called to the attention of State officials the fact that over 1,000 acres of the bay area was yet unrecorded and was, as a result, legally the property of the State. The North Carolina Department of Public Instruction, legal heir to public property under such circumstances, took possession of the property in 1968. In 1974, title to the property was transferred to the Division of Parks and Becreation.

Due to its isolation, inaccessibility, and somewhat hostile environmental conditions, little use has been made of Bushy Lake. Limited hunting and agriculture occurs around the margin of the lake edge with no human use of the bay proper.





Recreation Supply

The primary private recreation facilities available for public use are located around White Lake. There are four main privately owned swimming beaches available for public use: Goldston's Beach, Crystal Beach, Clearwater Beach, and White Lake Beach. In addition to parking, bathhouse/beach, and pier facilities, these establishments also provide recreation and amusement centers, gift shops, and restaurants. Clearwater Beach has also developed areas for camping and picnicking. In addition to these, numerous motels and restaurants dot the main road along the edge of White Lake through the town limits. White Lake is a regional tourist attraction. Although the development around the lake is fragmented and suffers from a lack of sound planning, it serves a vast majority of recreational use within the State Lakes area. During the summer season the roads are congested and the lake is overused. On fine days as many as 225 boats may use the water simultaneously. While there is a need for public access to White Lake boating needs to be limited or redistributed. Located west of White Lake on U.S. 701 is the White Lake Golf Club, a privately owned 18-hole course open to the public.

Within the 50-mile radius of the State Lakes Area, there exist seven areas owned and managed by the N.C. Division of Parks and Recreation. Of these, five are considered to be extensively developed by Division standards:

Weymouth Woods Nature Preserve is a State Natural Area containing 425 acres serving as an educational and scientific facility based on the unique natural communities and historic management of the Sandhills Area. It is the first facility of its kind in the State having a sophisticated Interpretive Center with museum and graphic displays, auditorium, laboratory, and meeting space. Self-guided nature trails and more extensive hiking trails are the primary outdoor activities. A majority of the site is designated for strict preservation and specific parcels managed for demonstration purposes. No other recreational facilities are provided or planned.

Cliffs of the Neuse State Park is, by comparison, an extensively developed park area. Day use facilities include picnicking for families and groups, swimming, boating, and hiking. A complete range of overnight facilities is provided from primitive camping to tent and trailer camping. It contains 572 acres within its boundaries and, by its location, serves the Goldsboro-Kinston area. A master plan for its development and physical management was completed in November, 1977.

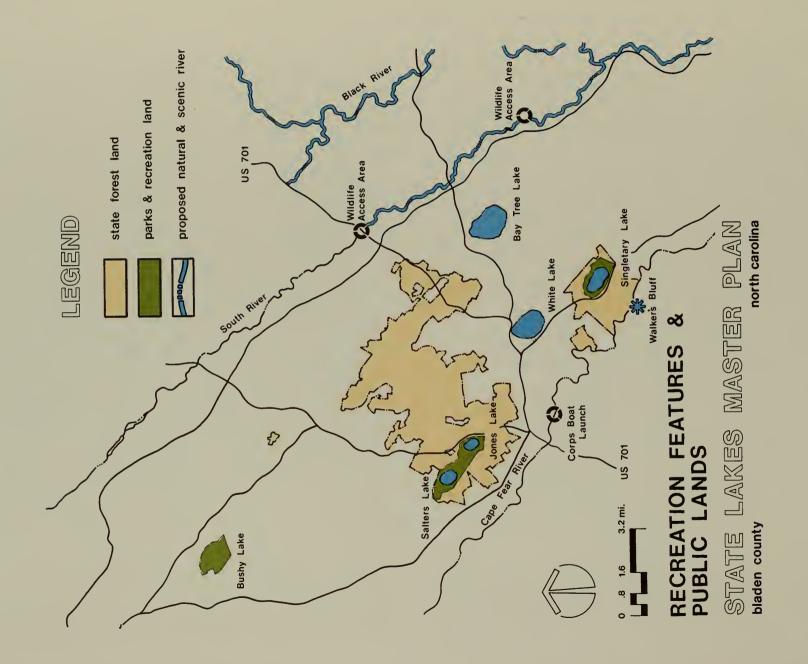
Carolina Beach State Park is located on Federal Point, a coastal peninsula in New Hanover County, and contains 441 acres. It, too, is an extensively developed park area providing picnicking, swimming, boating, and camping facilities. Carolina Beach serves the Wilmington area locally and has a high seasonal tourist visitation rate.

The two remaining park areas which can be considered extensively developed are Jones Lake State Park and Singletary Lake State Group Camp, both within the State Lakes study area. Jones Lake contains 1,669 acres of land and 224 acres of lake surface water. Family picnicking, swimming, boating, fishing, and overnight tent and trailer camping facilities are provided.

Singletary Lake State Group Camp serves exclusively as an organized group facility providing cabins, mess hall, and swimming and fishing pier. It includes 572 acres of surface water and 649 acres of surrounding land area.

Raven Rock State Park and Lake Waccamaw State Park are both relatively undeveloped areas although the rate of use and improvements at Raven Rock, in particular, is rising quickly. Raven Rock contains 2,727 acres including its feature, a monolithic rock outcrop overlooking the Cape Fear river. Although Lake Waccamaw is located outside the State Lakes study area, it is the largest of the Carolina Bay Lakes and provides 275 acres of parkland on the lakeshore.

Three of the Parks and Recreation areas under study in the State Lakes Master Plan are located within the boundaries of the Bladen Lakes State Forest. The State Forest encompasses some 32,000 acres, within which extensive forest management



and timber sales are conducted. Of the total acreage, only about 12,000 acres are productive with the remainder in swamp or bog. Public access and use of the Forest land is provided on a limited basis. Demonstrations of the forestry management and operations are granted to about a dozen college groups annually and are mostly technical in nature. About 40 acres of the Forest has been designated as a group camp area. This is strictly a tent camping area with no fee, but reservations are required.

In 1976, the State Forest was opened to hunting as an officially designated gameland. Although its first year of operation was well publicized, only 75-100 deer were taken in the Forest of the 1,250 for the County as a whole. Division of Forest Resources officials indicate little problem in compatibility between forestry operations and the hunting. Indeed, the instigation of wildlife management procedures has served to formalize the control of poaching.

The remaining regional recreation facilities include Hoffman Forest, a study area and gameland owned by the University of North Carolina located on the eastern edge of the study area. Fort Fisher State Historic Site, a Civil War restoration, and the Fort Fisher Marine Science Center are located on Federal Point in New Hanover County, adjacent to Carolina Beach State Park. Moore's Creek National Military Park is a Revolutionary War battlefield located in Moore County, between Wilmington and Elizabethtown.

Despite a comparatively well-rounded recreation program in this region, parklands are quite small by State and National standards. State Park areas within the study region afford only 11 acres per 1,000 people, as compared to the SCORP standard of 20 acres per 1,000 people. Although this discrepancy appears to be significant, there exist some moderating factors which should be recognized. First, several of the lakes (which are the focus of much of the recreational demand) are not included in these figures. Those lakes which do not have a complimentary State Park land area associated with them are not included. Also, the acreage contained in the State Forest was not

included though a considerable area serves to augment parklands and buffer. Additionally, the public beaches along the coast serve to significantly reduce the shortfall of public facilities further inland.

At this level of analysis there appears to be a need for further lands to be acquired and developed for public recreation. The need for further land acquisition is probably in the range of 2,000 - 5,000 acres. By comparison, use of the State Lakes area is much less than the other State park Areas. However, there is a need for a wider range of facilities, particularly for the recreational extremes—that is, both highly intensive facilities and low-intensive, pastoral activities. This aspect of recreation supply and more immediate problems and opportunities will be discussed in the following section.

Recreation Features and Public Lands

In addition to the State Lakes themselves, there are several additional public recreation features in the area. The Cape Fear River, located south and flowing southeast of the lakes is a navigable waterway and is popular for skiing and fishing. A public boat launch maintained by the Army Corp of Engineers is located at Lock #2 on the Cape Fear River east of Elizabethtown. Further downstream, Walker's Bluff is a scenic area where a steep escarpment briefly touches the river.

The South and Black Rivers, located northeast of the lakes and flowing southeasterly, are both nominated for inclusion in the North Carolina Natural and Scenic River System. In contrast to the Cape Fear River, the South and Black form a much younger system; narrow, winding and canopied by forest. Redbreast fishing is particularly popular in these rivers which are well adapted to the use of canoes and kayaks. Located along the main stem of the South River are two designated Wildlife Access Areas which are developed and managed by the Wildlife Resources Commission. The first area is located at the junction of U.S. Highway 701 and the river, where the scenic river designation is proposed to begin. The second area is located

about ten miles downstream, or about a day's canoe trip. Both are provided with public road access, parking, and boat ramps.

As mentioned previously, the Bladen Lakes State Forest contains 32,000 acres spread between the South River and Cape Fear River and within which Jones Lake, Salters Lake, and Singletary Lake Parks are located. Shown below are the land and water areas in the ownership of the Division of Parks and Recreation presently under study.

Park Areas	Land Acreage	Water Acreage
White Lake	1	1068
Bay Tree Lake	none	1418
Singletary Lake	649	572
Jones Lake	1669	224
Salters Lake	(1669)	315
Bushy Lake	1007	none

From this, the most notable observation is the lack of public land ownership at White Lake and Bay Tree Lake. As a result of this condition, free public access to the lakes is severely limited despite the fact that the lakes themselves are in public ownership. This point has been an issue for years and, by necessity, is a primary concern of this study. While a great majority of the facilities at White Lake are open to the public they are, nevertheless, controlled by the private sector.

In actual fact, a legal public right-of-way exists at White Lake although access is across privately developed facilities at Goldston's Beach. The public is apparently unaware of this situation but, at any rate, has few options but to use privately owned bathhouse, concession, and pier facilities. The situation at White Lake is acute as more than three-fourths of the lake edge is currently developed for private residences or business establishments. The only relatively undeveloped portion of the lakeshore is on its northwestern edge near the junction of U.S. 701 and N.C. 53. The majority of this land is in one ownership and has been undergoing a slow development for private residential estates for over five years. At this time, only about

one-tenth of the land has been developed. Much of the area is poorly drained and requires filling to become suitable for most uses.

As is the case at White Lake, there is no publicly owned land at Bay Tree Lake. Very little land area has undergone development by the Corporation and, at this point in time, development is not occurring rapidly. Nevertheless, the public interest in the lake is being ignored from a recreational point of view.

Due to the lack of usuable land area the facilities at both Jones Lake and Singletary Lake are contained within a small area. At Jones Lake, in particular, this situation presents a problem of congestion on days of heavy use. The density of development at Jones Lake and its proximity to the main highway gives it the appearance of a community park or recreation area. For the most part, however, the facilities are adequate as visitation, in fact, has declined since the park was integrated 15 years ago. The parking area (234 spaces) is adequate except on unusual weekends. Similarly, the Superintendent at Jones Lake considers the swimming facilities to be optimum at the present time. The bathhouse provides for 954 baskets in the changing rooms with four lifeguards on duty at peak hours.

The balance of recreation activities at Jones Lake heavily favor active recreation such as power boating and swimming. An interpretive program has not been developed at the park, however, a complete loop self-guided trail around the lake is currently under construction and will serve as a first step in providing for lower-intensity, pastoral activities.

The most critical problem at Jones Lake is related to power boating in the lake. Launching facilities are inadequate and poorly located. Due to the shallowness at the shore, it is very difficult to launch the larger power boats. An even greater problem is overuse of the lake by power boats; density of boats, speed, safety to swimmers, and damage to the shoreline are all increasing problems.

Access to Salters Lake is controlled by gate by the Jones Lake staff. Little use is made of the lake except for very limited

boating and fishing. Boating is limited presently to ten horsepower motors or less. Although not a designated State Natural Area, Salters Lake is presently managed as such. No facilities are provided other than a small parking area and boat launch.

Singletary Lake is managed as a group camp and, like Jones Lake, is very limited in usable land area. Presently ten cabins, two toilet buildings, a central mess hall, and pier for fishing and swimming make up the group camp. Its greatest problem is a low-capacity use due to the limited facilities and present policy which limits the renting of facilities to single groups. While the cabins can accommodate as many as 88 persons, an expansion of the group cabin area is likely to require additional mess hall facilities, depending on management procedures.

Since active day use facilities are primarily limited to the existing pier there are obvious problems in encouraging more intensive use. While it would be desirable to provide for more than one group during daytime hours, additional day use facilities such as picnic tables and shelters are required in addition to a reevaluation of management for swimming and boating facilities.

Located within the boundaries of Singletary Lake is a natural area designated by the Society of American Foresters called the Turkey Oak Natural Area. The area provides an excellent example of the sand ridge communities and includes such species as venus flytrap. The natural area is bisected by a Forest Service road which is used by park users for limited hiking. Considerable potential exists for further development of the interpretive program.

Geomorphology and Surface Hydrology

The "Bay Lakes" have a number of common characteristics. Invariably they lie within a larger Carolina Bay which in turn have several common characteristics:

- 1. An oval or elliptical shape
- 2. Axes which extend in a consistently northwest-southeast direction.

3. Their sandy rims are always highest and best developed at the southeast end.

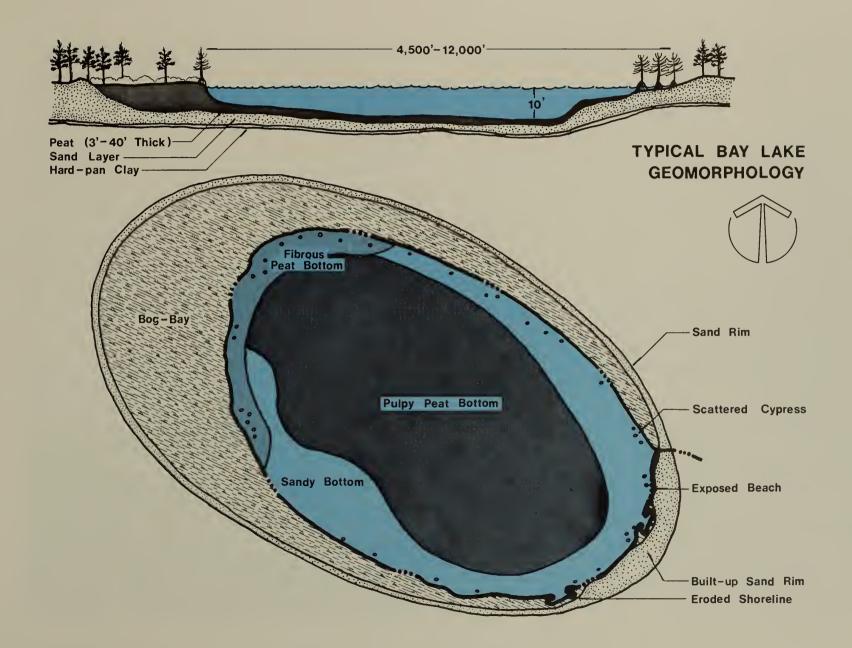
The beds of the bays are usually filled with a dense tangle of vegetation which eventually turns to peat up to 40 feet thick. The peat, in turn, extends onto the floor of lakes whenever they occur within a bay. The deepest portions of the lakes have a bed of fully decomposed "pulpy peat," whereas the northwest edge merely has partially decomposed or "fibrous peat." The remaining perimeter of the lakes typically have a sandy bottom. A hardpan clay layer generally lies under the peat or sand layers.

The bay vegetation is generally most fully developed at the northwest end of the bay, but tends to establish itself almost completely around the lakes. Cypress trees and some of the bay trees thrive in water up to four feet deep. In Jones and Singletary, rows of cypress paralleling the present shores indicate old shorelines at times of low water levels. These trees form a bulwark or wall against wave action and current, permitting sediments to accumulate more rapidly, and afford protection for other plants to become established. The gradual accumulation of dead plants and their products are transformed into peat, forming swampy ground around the lake, subsequently reducing its size. Jones Lake is only 34 percent of its original size, while White Lake is 71 percent, with the other three Bladen County lakes in between. Under natural processes, these lakes will become completely filled in, just as many other bays have become bay-bogs.

Natural sand beaches are confined chiefly to the southeast side of the lakes. Salters Lake has virtually no exposed beach. Most of the lakes have dense bay vegetation up to the bank, overhanging up to 10 feet around the majority of their shoreline.

Sand rims or "ridges" of one to ten feet in height generally surround the bays, and are always best developed at the southeast end. Although all of those bays which have an interior lake apparently also have a sand rim, many of the other half million or so bays have only a partial rim or none at all. Other bays overlap, forming rims which converge toward a single rim





or one which gradually diminishes in size or fades into non-existence. Salters Lake bay is a good example of this phenomenon. Other bays have a series of two to eight concentric rims which are most prominent on the southeast end. Bushy Lake and Cypress Bay (within Bladen Lakes State Forest near Singletary Lake) are two prime examples within partial or complete State ownership. Still other rims establish the existence of smaller bays entirely within larger bays. Simmonds Mill Pond, just northwest of Bushy Lake is one such example.

Migrating sand dunes are another geomorphological phenomenon of the Carolina Bays. Comprised of undulating terrain of wind-blown sands, these dunes are now usually relatively stabilized with a forest canopy and various shrubs. The area east of Salters Lake is probably the most outstanding example. Others include the east side of Jones Lake (across Highway 242), east side of Singletary Lake, and an area centered about one-half mile southeast of Bushy Lake.

The five State-owned Bay Lakes in Bladen County vary in size from 224 acres to 1,418 acres at Jones and Bay Tree Lakes, respectively. Their corresponding lengths vary from 4,200 feet to over 11,000 feet. The deepest lake is Singletary at 11.8 feet, while the shallowest is Bay Tree with a maximum depth of less than 8 feet.

In general, the deepest water is located close to the southeast end. Within 50 feet of the southeast shoreline, there is an initial drop of 1.1 to 2.0 feet in all of the lakes, which has been brought about by wave action. A shallow wave-built terrace then usually extends several hundred feet into the lake with a width roughly proportional to the length of the lake. Jones Lake, however, is an exception; having no terrace, it gradually slopes from the edge to its central plain. Additionally, in Jones and Salters Lakes, the greatest depth occurs near their geographic center.

The northwest ends have no terraces. The dense growth of bay vegetation comes to the edge of the water, with depths up to five feet at the water's edge. No influence of wind is evident along this shore. The water quality in all of the lakes is generally quite similar with reasonable purity, dark color, high acidity, and a scarcity of essential plant nutrients. Due to its relatively clear water, White Lake is an exception with regard to color. It also has slightly more nutrients, but otherwise is comparable to the other lakes. Unconfirmed reports indicate that Bay Tree Lake may be less acidic than the other lakes, but in general, their ph values range between 4 and 5.

The water quality classifications as approved by the North Carolina Board of Water and Air Resources varies among the Bay Lakes. White and Jones Lakes are classed as "B." Singletary is "B-Swamp." This indicates that their best usage is for bathing and other contact water sports. Conversely, Salters Lake is classed as "C" while Bay Tree is "C-Swamp." This indicates that the latter two lakes' best usage is fish and wildlife propagation, boating, and wading. Thus, the water classification for these two would have to be up-graded to accommodate swimming and other body contact sports.



Ground Water and Geology

The basement rocks underlying the Bladen County area are chiefly gneiss, schist, granite, and metavolcanics. The bedrock surface lies at a depth of about 400 feet in northern Bladen County and slopes downward about 20 feet per mile towards the coast.

The Tuscaloosa Formation of Late Cretaceous age is the oldest formation that yields water to wells in the area. Consisting of interbedded sands and clays, it lies unconformably on basement rock.

More important are the layers of sand between layers of clay within the Black Creek Formation. The County's major aquifer, this formation of Late Cretaceous age lies unconformably on the Tuscaloosa and ranges in thickness from 300 to 350 feet in the vicinity of the State Lakes. Large diameter wells which tap the Black Creek Formation generally produce 6 to 8 gpm (gallons per minute) per foot of drawdown. Yields of 600 to 700 gpm can generally be expected with wells 8 to 12 inches in diameter and 350 to 450 feet deep. The water, considered soft and low in total dissolved solids, is suitable for domestic as well as most other uses.

Surficial deposits of sand associated with sandy clay overlie the Black Creek Formation. Ranging in thicknesses of a few inches to 35 feet or more, these deposits of probable Pleistocene age are also an important water source, primarily for small domestic wells and ponds. However, the shallow wells which tap the surficial deposits are quite susceptible to contamination.

Natural Communities

The "Carolina Bay" region is characterized by four major natural communities; the Carolina Bay-Bog, the Sand Ridge, the Swamp Forest and the Aquatic Community. Although the region covers much of the lower coastal plain of both North and South Carolina, some of the best examples of bays may be seen in the area of the State Lakes.

The Carolina bay-bogs are typified by highly specialized vegetation caused by a combination of several environmental factors. Throughout much of the year, the water table within the bays is very near, or even above, the ground surface. This factor eliminates all plants not resistant to flooding and poor soil aeration. However, the bays are not true swamps, but upland areas, and are thus occasionally subjected to drought conditions. This factor eliminates all plants not resistant to drought. In addition to these very serious limiting factors, the deep peat soil of the bays is very low in nutrients, particularly calcium and nitrogen, and is quite acid. Although bay areas are usually quite resistant to fire, they may burn during very dry periods, and are thus subjected to the severe fires which have ravaged our coastal plain for thousands of years. Bay vegetation, then, must be tolerant of fire.

Most oaks, hickories, and other plants so common throughout North Carolina would stand very little chance of survival under the environmental conditions found in Carolina Bays. Instead there exists an almost impenetrable thicket of "bay bushes" including: loblolly bay (Gordonia lasianthus), red bay (Persea pubescens and P. borbonia), and sweet bay (Magnolia virginiana). Other commonly found shrubs include: pepperbush (Clethra alnifolia), titi or leatherwood (Cyrilla racemiflora), bitter gallberry (Ilex galbra), sheep-kill (kalmia angustifolia var. caroliniana), fetter-bush (Leucothoe racemosa), angled stem fetter-bush (Lyonia lucida), wax-myrtle (Myrica cerifera), chokeberry (Vaccinium atrococcum), and honey-cup (Zenobia pulverulenta), amongst others. Intertwined with these shrubs are numerous greenbriers (Smilax laurifolia) and pepperwine (Ampelopsis arborea).

Depending on the specific locality, canopy trees within the bays will likely include pocosin or pond pine (Pinus serotina), loblolly pine (Pinus taeda) and white cedar (Chamaecyparis thyoides). Some bays may also have tupelo gum (Nyssa sylvatica var. biflora), sycamore (Platanus occidentalis), sweetgum (Liquidambar styraciflua), and bald cypress

(Taxodium distichum). Pond cypress (Taxodium ascendens) is frequently found in standing water; specimens up to 400 years old have been reported in Singletary Lake.

The Carolina Bay-Bogs are characterized by Pamlico and similar soils. These soils have black organic surface layers more than 20 inches thick, with underlying layers of sand or sandy loam. Because these soils are very poorly drained and frequently subject to flooding, they have very severe limitations for the development of all categories of park facilities. In addition, they have low-bearing strength and traffic support capacity for roads and trails.

Except for an occasional bear or bobcat, there is little wildlife in the bays. The vegetation is too thick for easy passage, and the bushes themselves are of little food value. The picture is not so aversive as it might seem, however, for the flowers of many of the bay shrubs are quite showy, and the bright green leaves of the many evergreen species lend diversity to the somber winter landscape.

The vegetation of the dry, coarse sand ridges adjoining the bays is just as distinctive as that of the bays themselves. On these higher areas, competition for nutrients and water limits not only the species present, but the number of individual plants as well. Usually the soils are Kureb and related soils which occur on broad, gently sloping or moderately sloping surfaces of the coastal plain including the sand ridges around Carolina bays. These soils have light gray or white sandy surface layers which act as a giant reflector oven, turning back the sun's rays and creating an intensely hot, dry area just above the ground level.

This accentuates the effect of low soil water, pulling moisture from the soil through the leaves of whatever plants are present. As might be expected, all these arid characteristics combine to make the sand ridges extremely vulnerable to fire, and those plant species which survive there must be resistant to burning.

Underlying the sandy surface layers are layers of yellowishbrown sand. A thin discontinuous cemented layer usually occurs within 30 inches of the surface.

Kureb soils are extremely sterile, being particularly low in calcium and nitrogen. Their coarse texture permits water to percolate very readily, thus further contributing to the zeric conditions which normally occur only a few days after a rain. However, because these soils are not frequently subject to flooding as are the Pamlico soils, their development limitations are only moderate. Any soil problems that do arise are generally the result of the relatively unstable sandy surface layer.

Only two tree species are prevalent in the sand ridge community: longleaf pine (*Pinus palustris*) and turkey oak (*Quercus laevis*). However, loblolly pine (*Pinus taeda*) and scrubby post oak (*Quercus margaretta*) are sometimes found. Wiregrass (*Aristida stricta*) is the most common ground cover. Scattered bayberry (*Myrica heterophylla*), and dangleberry (*Gaylussacia frondosa*) also persist on some sand ridges.

Wildlife is more abundant here than in the bays, but animals are still not so numerous as in the Swamp Forest and other areas of less extreme environmental conditions. Tracks of deer, bear, turkey, fox and raccoon may be found, and an occasional fox squirrel seen, but, except for the fox squirrel (which feeds on

the longleaf pine seeds), most animals use the ridges merely for moving from one feeding area to another. Red-cockaded woodpecker habitats exist on sand ridges on the west side of Jones Lake as well as the east side of Singletary and Salters Lakes.

The third natural community typical of the State Lakes area is the Swamp Forest, occurring in low-lying areas outside the bays. Here constant high water table and low fire have resulted in a forest of tupelo gum (Nyssa aquatica), swamp gum (Nyssa sylvatica biflora), ashes (Fraxinus tomentosa and F. caroliniana), bald cypress (Taxodium distichum) and swamp red maple (Acer rubrum var. carolinianum). White cedar (Chamaecyparis thyoides) and swamp hickory (Carya aquatica) are also likely to be found. Sweet gum (Liquidambar styraciflua) is common on the borders of the swamp.

Many of the bog-bay pocosin shrubs can also be found on slightly higher ground in the swamp, as well as the margins of the swamp. In addition, the swamp rose (Rosa palustris), swamp dogwood (Cornus stricta) and two or three species of viburnum are present. Possum haw (Viburnum nudum) is the most common. In the drier areas, the chain fern (Woodwardia virginica) may also be expected. Two vines which climb high in the gum and other trees, are especially noteworthy. These are the supple-jack or rattan (Berchemia scandens) and the more common cross vine (Anisostichus capreolata).

Leon and similar soils occur on the nearly level to gently sloping landscape of the Swamp Forest. They have light gray to very dark gray sandy surface layers, and weak to strongly cemented pans 15 to 30 inches below the surface over sand. Like the





Pamlico soils, Leon soils are poorly drained and subsequently have severe limitations due to a periodically high water table.

Wildlife flourishes in the Swamp Forest. Raccoons, otter, deer, bear, mallards and wood ducks, gray squirrels, and countless other native animals make their home in and around the swamp. During the winter, myriad blackbirds, robins, and woodpeckers feed in the trees. The large pileated woodpecker nests here, as did the now-extinct Carolina parrakeet and ivory-billed woodpecker. In these areas, scorned by man, these animals have found a home, and will remain as long as the swamps remain.

The Aquatic community includes all the water in the area. Jones, Singletary, Salters, Bay Tree (Black) and White Lake comprise the greater part of this area, but all small streams and temporary pools may be considered in this category. Because of the dark-stained, acid water in most of the lakes, few plants and animals can survive in them.

In White Lake, however, the dark water of the bordering bog is drained away from the Lake, instead of through it, and the resulting lake water is crystal clear. However, the acid condition remains, and the low nutrients presently still restrict the biota of the Lake. Nevertheless, with 22 species of fish, White Lake is considered the most productive. Largemouth bass and yellow perch are the most important game species, but their growth rate is very slow. Although several species of small forage fish can be found, their numbers are relatively low. Predaceous fish

predominate both in numbers of species and individuals. At least one faunal specie in White Lake, *Pelascalex carolinensis* (oligochaete) is considered rare and endangered.

Although Bay Tree Lake was once considered one of the least productive of the lakes, it is now considered second only to White Lake. Drainage, bottom clearing, and construction of a sand dike within the past decade has significantly improved Bay Tree Lake's capacity for biotic production. Largemouth bass are reportedly the primary attraction.

The remaining three lakes, Singletary, Jones, and Salters, may be considered as a group primarily because of their general similarities. All three are relatively undisturbed, Salters being the most natural. However, shallowness, dark color, and acidity of the water form a very undesirable situation in all three lakes from the standpoint of fish production. The fish population that does exist is undesirable not only because of the species present, but also their relatively low population. Because of its yellow perch population, Singletary Lake is considered the best of the three lakes from a fishing standpoint.

The entire bay depression at Salters Lake, including the Lake and perimeter has been proposed as a Natural Area. It is considered a fine example of a Carolina Bay which has been left undisturbed by man.

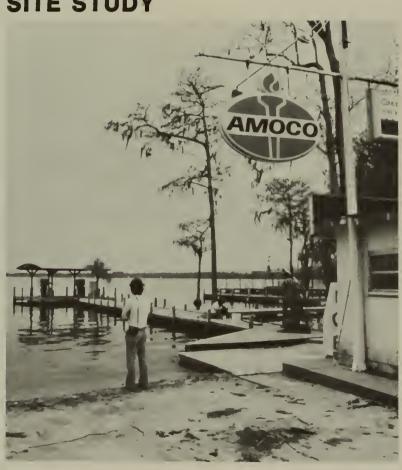
The existing Turkey Oak Natural Area at Singletary Lake has been set aside to serve as a prime sample of a Turkey Oak — Polygonella community, typifying the variation of succession

depending on soil, moisture and natural disturbances. The area consists of a coarse sand ridge at the southeastern end of Singletary Lake and a portion of Singletary Lake's bay-bog, as well as the ecotone between. Besides being beneficial to educational and scientific study, this area also serves as a natural habitat for rare insectivorous plants, Venus flytrap (Dionaea muscipula) and sundew (Drosera rotundifolia).

Bushy Lake, located in Cumberland County just north of the Bladen Lakes area, has also been included in the State Lakes Master Plan study. Neither a "lake" nor a typical "bay," this natural phenomenon is an outstanding example of a "low bay." Dominated by Zenobia, Carex walteriana and Eriokphorium virginium (cotton grass), the "low bay" area has the appearance of an open savannah with scattered brush about four and one-half feet tall. Two rare species include Kalmia cuneata and Rhyncospora alba. Standing water occurs in the low bay area for relatively extensive periods of time, while small open water areas exist at both ends of the bay. One grass, Andropogon virginicus, occurs occasionally in Bushy Lake.

Around the periphery, the vegetation is more characteristic of most other bays in the vicinity with an evergreen shrub thicket dominated by Gordonia, Clethra, Magnolia, Persea, and pine. This "high-bay" community, in turn, abruptly meets a typical bay sand ridge with a Longleaf Pine — Turkey Oak — Wiregrass community. In fact, three parallel sand ridges occur along Bushy Lake's southeastern margin.

SITE STUDY



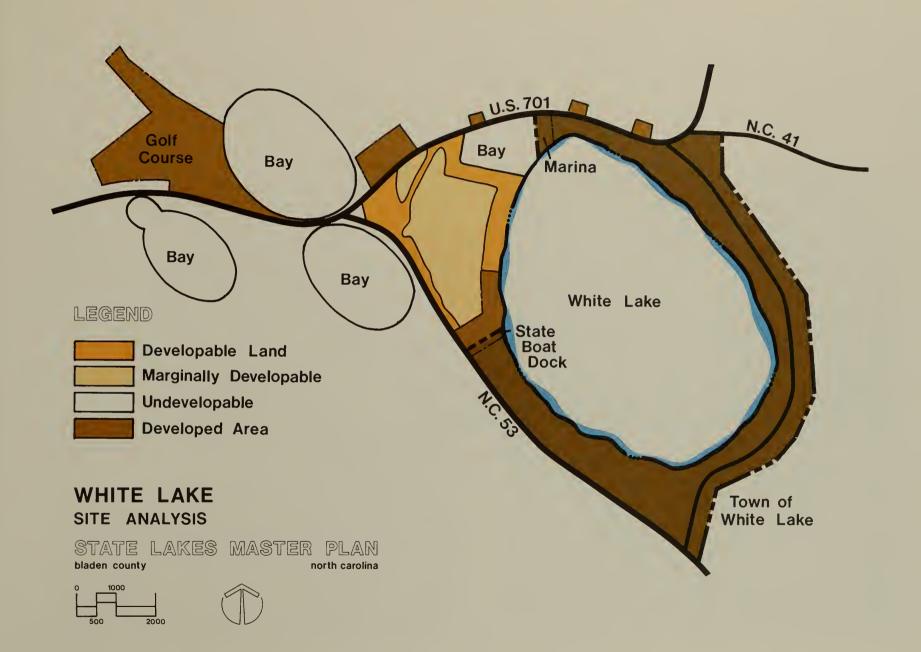
White Lake

Nearly circumscribed by its namesake town, only the northwest shoreline of 1,068 acre White Lake remains undeveloped. Predominately low-lying bay, much of this remaining undeveloped 300+ acre area has been ditched and drained. A filled-in 400-foot wide strip parallels all but 700 feet of the remaining undeveloped shoreline, and is bisected lengthwise by a dirt road which is connected to N.C. Highway 53 on either end of the shoreline strip. Most of the drained area on the backside of this strip has yet to be filled. Such action is probably essential for most types of development.

A number of large cypress line the lake edge, while the filled strip itself has been planted with pine (now averaging about 15-20 feet tall). The drained and ditched area is very open with an occasional isolated mature pine.

Towards the west, a 25+ acre area of relatively high ground adjoins the previously mentioned site. Near the intersection of N.C. Highway 53 and U.S. 701, this particular site is not only ideally situated in terms of highway road frontage, but its "parklike" atmosphere is aesthetically attractive. Mature mossdraped pines dominate this particular area.

Approximately 50 acres of relatively undisturbed remnant bay-bog still exists on the northeastern corner of the remaining undeveloped lake frontage acreage. Low-lying and undrained, this particular area is often wet. A dense understory of evergreen shrubs makes both visual and physical penetration very difficult. The overstory consists of mature pond pine with cypress near the lakeshore. All of the undeveloped acreage is under the control of two owners.



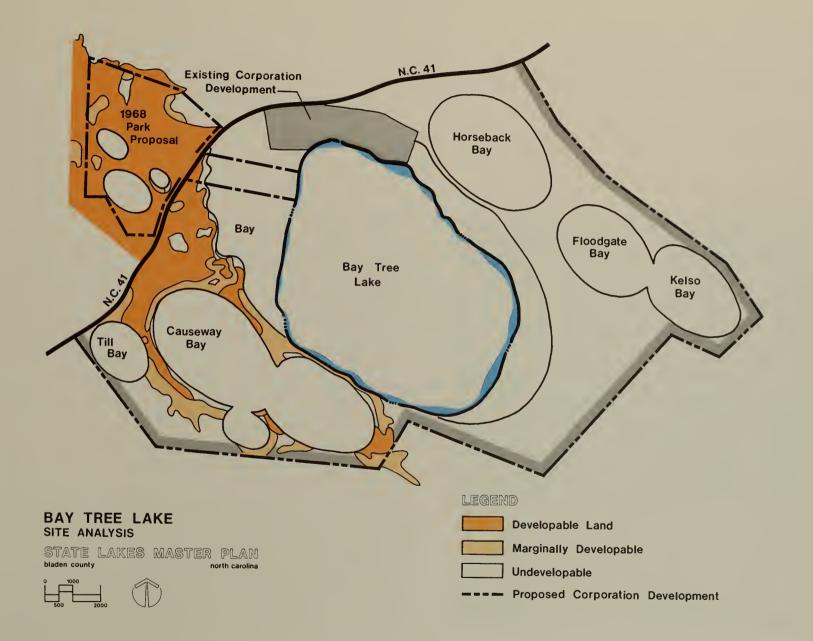


Bay Tree Lake

Bay Tree Lake (formerly Black Lake) is half again as large as White Lake. At the present time, the entire shoreline of this 1,-418 acre lake is under the ownership of Bay Lakes Corporation. A canal system has been dredged near the northern perimeter of the lake and lots sold. Approximately a dozen vacation homes and a community recreation center have been constructed. A private marina is currently under construction. Future corporation plans include extension of the canal system in a clockwise direction around the lake. Eventually, nearby bays will be cleared and flooded to form additional lakes. In addition, three golf courses have been proposed.

Currently, public access is limited to a jeep trail which connects the southwestern edge of the lake ("Upper Landing") to N.C. Highway 41. Although virtually the entire lake is surrounded by bay, natural high ground does occur on the backside of the bay (away from the lake) in several places, particularly the west side. Coincidentally, the west side of the lake has been designated the area to comprise the last phase of development by the Bay Tree Lakes Corporation.

The average distance between State Highway 41 and the lake is about 4,000 feet on the lake's west side. Over 500 acres lie between the road and lake in this particular vicinity; slightly less than half is bay-bog, bordering the lake edge. The other half is relatively high sandy ground, much of which is rolling terrain with a mixture of mature deciduous and coniferous trees at least 40-50 feet tall. Near the lake, however, clearing has taken place. Causeway and Till Bay border the south edge of this area. Both are being utilized for agricultural purposes at the present time.



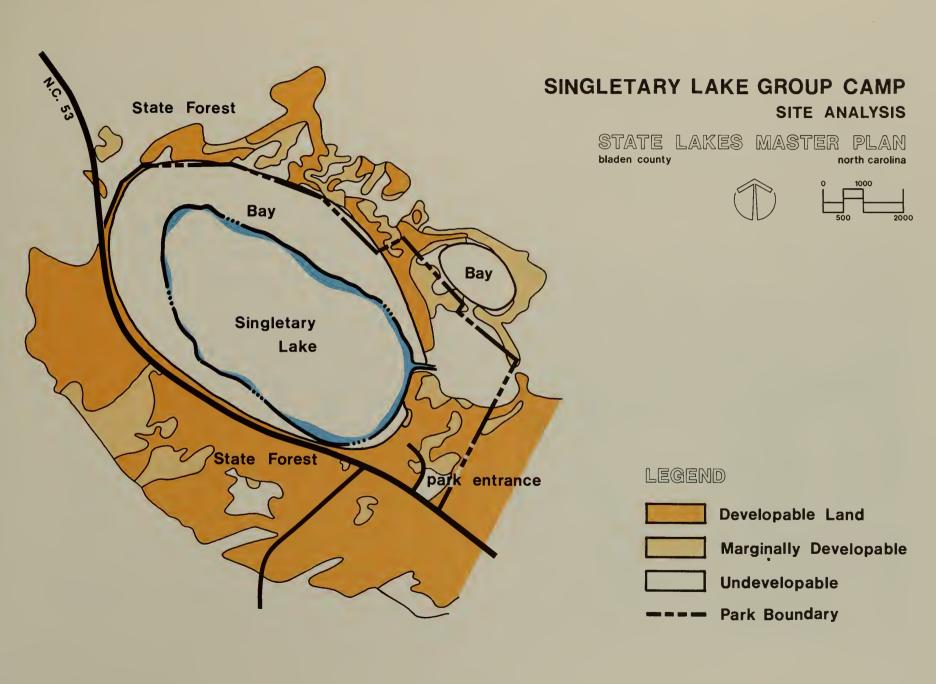


Singletary Lake

Five hundred seventy-two acre Singletary Lake encompasses most of its namesake bay. Together, they encompass about 80 percent of the park's 1,200 acre area. Developable high ground is very limited and is largely restricted to the southeastern shoreline where the existing group camp facility lies, and to the Turkey Oak Natural Area on the northeast side. The former area has some mature pines and oaks which provide partial shade. However, they are rather sparse for the most part, except beside the lake. The higher ground within the natural area, on the other hand, is practically void of any canopy vegetation. Most of the area is barren sand with scattered turkey oaks which seldom exceed 15 or 20 feet in height.

Several small isolated plots of relatively high, shaded land exist to the north of Singletary Lake on private property. These areas appear to be situated among a system of migrating sand dunes, similar to those on the east side of Salters Lake, although not quite as attractive. A quite extensive area of high ground exists on the south side of the highway. Much of this area is covered by a mature pine forest which is actively managed by the N.C. Forest Service.

A graded dirt road circumscribes Singletary Lake Bay, but is interrupted by the lake outflow where no vehicular bridge exists. Closed to the public, this road primarily serves to provide access to Forest Service Property on the north side of Singletary.



Jones and Salters Lakes

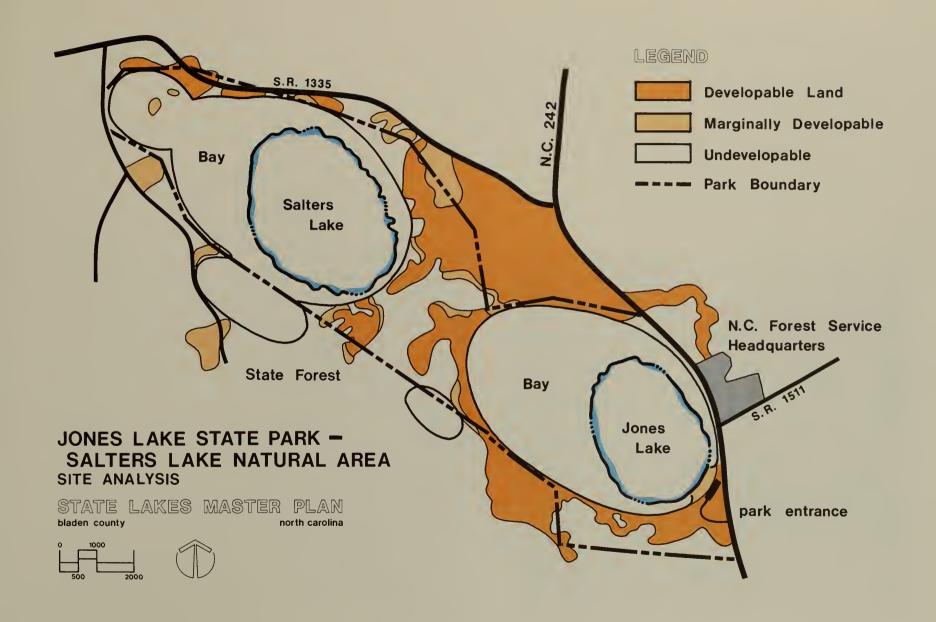
Two hundred and twenty-four-acre Jones Lake and 315-acre Salters Lake, together with surrounding land, comprise 2,200 acre Jones Lake State Park. Most of the land area, however,



consists of bog-bay and swamp forest. Jones Lake is surrounded by a single large bay about one and one-half miles long while Salters Lake lies within a similar size bay with two smaller overlapping bays. Most of the high ground which does exist occurs on the sand rim surrounding Jones Lake, and the rather inviting rolling "sand dunes" on the east side of Salters. In addition, a sizeable tract of adjacent high ground occurs on N.C. Forest Service property just north of Jones Lake Bay and east of Salters Lake.

A mature canopy of predominately pine forest covers most of the high ground, but becomes relatively sparse in scattered areas, particularly on top of the sand rim around Jones Lake and portions of the dune system on the east side of Salters. Part of the dune system is, in fact, rather barren with scrubby turkey oaks predominating. Nevertheless, this particular area is quite beautiful. The bog-bays and swamp forests are largely covered with mature natural vegetation characteristic of those ecological communities.

Virtually all recreational development within the park exists on the southeastern shore of Jones Lake just off Highway 242. Major activities include camping, picnicking, swimming and boating. A graded roadway follows along the entire rim of Jones Lake Bay; both ends intersect N.C. 242. This rim road, however, is normally closed to the public. A narrow trail permits vehicular access from the Jones Lake rim road to the south shore of Salters Lake where a small informal boat launch is located for fishing access. Salters Lake remains in an almost pristine state. Across Highway 242 from Jones Lake is the N.C. Forest Service Headquarters along with a forest fire lookout tower. S.R. 1335 parallels the north park boundary.





Bushy Lake

Bushy Lake is not an actual lake, but rather an atypical Carolina bay. Comprised of about 1,200 acres not including its surrounding sand rims, it has typical evergreen bog shrubs only around its perimeter. The majority of its interior is characterized by "low bay" vegetation, resembling an open savannah with its scattered trees and shrubs. Water lies under the grasses most of the year, and actually lies exposed on both ends of the bay in the form of several small ponds.

A rather prominent rim surrounds virtually all of the bay. However, on the southeast edge of the bay, several successive rims are apparent. Averaging 600-800 feet in width on both the southeast and northwest sides, the primary rim offers the most potential for any type of access or facilities. Access to the southeast end can best be achieved by two potential routes to S.R. 1002 to the east. On the other hand, the northwest portion of the rim can be reached via two possible routes from N.C. Highway 53, and one possible route from S.R. 1002. A jeep trail follows the rim around the lake. To the north, Reedy Marsh has been ditched and drained. The owner has expressed his intent to subdivide the property and provide additional road access, but to cooperate with the Division of Parks and Recreation for mutual benefit.

STATE LAKES MASTER PLAN bladen county north carolina SITE ANALYSIS **BUSHY LAKE** 2000 reedy marsh small bay within larger bay multiple rims overlapping bays "high bay" LEGEND Bushy "low" bay -Lake developable land multiple rims marginally developable undevelopable elongated multiple bays. migrating developed sand dunes park boundary overlapping "heart-shaped" bays Little Singletary Lake multiple rims Sugg's Mill Pond

PROGRAM STUDY

Existing Program Context

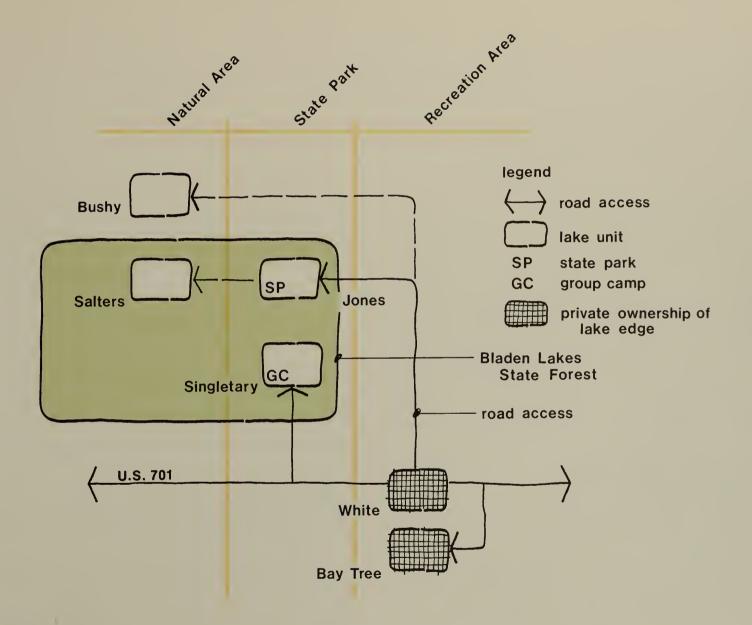
Present policy for the North Carolina Division of Parks and Recreation indicates three principle program classifications: State Recreation Area, State Park Area, and State Natural Area. Generally, these classes can be described on a continuum from most recreation intensive (Recreation Area) to least recreation intensive, or wilderness (Natural Area). The overwhelming maiority of Division-maintained facilities are State Parks, designed to provide a balance of recreational and wilderness oriented activities. Unfortunately, a distinction between the areas is not easy to make and an area's development history does not always concur with its program classification. Nevertheless, the classes do describe a range of park experiences as complete as is currently desired. The provision of very intensive, community oriented recreation areas is not a direct objective of the Division and is therefore left as a county or municipal responsibility. As a result, one will ordinarily find lake swimming facilities rather than a swimming pool, or informal open space rather than tennis courts or ball diamonds.

The classification of a particular facility will depend primarily on its physical characteristics, resource limitations and also on the character and proximity of adjacent land uses. In addition to the three main programs, the Division is also responsible for several other programs. The State Lakes are, in fact, a specialized program of the Division as they require particular management procedures and policies relating to water quality, use and lake edge management. In terms of related land area and type of facilities, however, the State Lakes are managed according to one of the three principle classes. State Group Camps such as Singletary Lake are considered, for developmental purposes, a function of State Park areas.

As indicated previously in this study, there is considerable diversity in the character of the State Lakes sites, the scope of their development, accessibility, and adjacent land uses. White Lake, Bay Tree Lake, Jones Lake, and Singletary Lake are all highly accessible by road although Bay Tree Lake and White Lake, particularly, are the subject of greater public exposure than the other sites due to their promotion. White Lake is not only a seasonal population center but is also the geographic center and focus of the highway system. Jones Lake and Singletary Lake are developed and maintained as State Park Areas within the confines and protection of the Bladen Lakes State Forest. White Lake and Bay Tree Lake on the other hand. are settings considerably more urban in character by the nature of their surroundings. Due to these conditions and their site specific qualities, both White Lake and Bay Tree Lake can be classed as sites having compatibility with State Recreation Area programs.

Bushy Lake and Salters Lake are viewed at the opposite extreme of the program continuum, that is, being compatible with State Natural Area principles. Although not presently classed as State Natural Areas, both sites qualify for this designation. Access to these sites is less direct and more highly controlled, so that a wilderness character is maintained.

A study of distances by road between State Lake areas indicates several factors of significance. White Lake's location near the geographic center of the area is contrasted with the isolation of Bushy Lake. Bay Tree Lake, Singletary Lake, and Jones Lake are all within five to seven miles of White Lake but are greater than 12 miles from each other. Salters Lake and Jones Lake, by proximity, are closely related.



Existing Program Context

Planning Objectives

Early in the program study interviews were conducted with Division staff and the general public to gather information and views concerning the State Lakes development plan. Within the Raleigh office, interviews were conducted with the Chief of Planning, Chief of Interpretation, the Regional Manager for Eastern Operations, the Regional Naturalist, and the Natural Areas Coordinator. In the field offices, the Superintendents from both Singletary Lake Group Camp and Jones Lake State Park were interviewed as well as the former Superintendent of Singletary Lake. Also, during the week of the first field investigation, a public meeting was held at the Singletary Lake Group Camp Mess Hall. The purpose of this meeting was to provide the local community with a forum for discussing the needs or problems associated with the State Lakes as they related to the Master Plan.

Several objectives for a master plan have emerged as a result of these interviews and analysis:

The State Lakes should not be viewed as a proliferation of separate public units, but a combination of complementary units ranging in potential services from recreation area to natural area.

Objective: Coordinate the recreational opportunities between lakes so that programs are complementary; use and development programs should not be independent, but rather, interrelated by proximity and environmental context. The potential for providing a complete range of parks and recreation services within this overall project should be developed.

The current seasonal population and visitor use is over-

whelmingly centered around White Lake; a pattern not to be altered by any public program short of a massive injection of money and energy.

Objective: Make use of White Lake as a focus for information services and public relations in increasing visibility and use at other lakes.

A poorly balanced distribution of visitor use has resulted in overdevelopment or underdevelopment of park units and lack of a coordinated public relations program.

Objective: Develop a recreation program which provides a more proportionate balance of facilities, physical conditions, access, and landscape character; provide information and direction for a complete and efficient recreation program.

An interpretive program based on the bay lake formation and related natural conditions must be developed and conveyed in, first, a regional context and second, site specific or local conditions.

Objective: Develop a program which ranges from general orientation to site specific descriptions of the formation of the bay lakes and utilizes a diverse cross section of sites, media, and outdoor opportunities.

A secondary interpretive theme should be developed which focuses on forestry management and operations within the Bladen Lakes State Forest — a facility not having capability for a self-contained program for family or visitor use.

Objective: Build a Forestry component into the Interpretive program to the extent that agency programs and physical resources can be effectively managed.

Time-Budget Analysis and Plan Concept

A time-budget analysis* is a recording of time spent indulging in various activities over a particular period and related to geographic distribution and access. It serves to better understand the efficient or inefficient use of time and the needs of people on various points of their itinerary, formal or informal. In the State Lakes study, time budgeting was viewed over the period of a weekend with each user day broken into three, fourhour increments. Three analyses were conducted: one for the "existing conditions," one for a suggested "family recreation" program, one for a suggested "family interpretive" program. The diagrams for each analysis indicate the movement of a family from place to place and the relationship between certain activities such as boating, swimming, or the movies to necessary services such as fuel, food, and boat storage to overnight accommodations. In all three analyses arrival and departure are the same assuming that travelling time/distance to and from home will be a predetermining factor.

Presently, the majority of weekend tourists spend all of their time in or around White Lake from the time of arrival to the time of departure. All necessary services, most types of overnight accommodations, and the most intense recreational activities occur at White Lake.

In this most basic of weekend scenarios, recreational activities occur in the morning and afternoon. Entertainment and

other services occur in the evening. While the weekend could be quite active, it would lack diversity or a potentially greater number of experiences. A person spending his entire weekend at White Lake is not likely to leave with any notion of the uniqueness of his surroundings or experience potentially more interesting recreational activities. More of a broad range of experiences is desirable for a well-rounded recreation program.

A broader program can be accomplished through increasing program options and providing the information/promotional

	W	AITE BE	TREE	AGLETY	MES	ALTERS
WHITE LAKE						
BAY TREE LAKE	5.5					
SINGLETARY LAKE	6.7	12.2				
JONES LAKE	6.7	12.2	13.4			
SALTERS LAKE	9.2	14.7	15.9	2.5		
BUSHY LAKE	25.2	30.7	31.9	18.5	16	

ROAD MILEAGE BETWEEN LAKES

^{*}The concept of time-budget as it relates to places was conceived and is best explained, by Richard R. Wilkinson, Professor of Landscape Architecture, School of Design, N.C. State University, Raleigh.

services necessary to be effective. This may be done by establishing a staffed Information Center for visitor orientation, providing regular bus transport services to other park units, and by providing a greater diversity of recreational activities and overnight facilities according to program classifications. Due to the accessibility, centrality, and visibility of the White Lake environs the Information Center suggests this general location. Specifically, it should be located near the intersection of U.S. 701 and N.C. 53 where the aforementioned criteria are met. The Information Center should, in fact, be road oriented and well advertised from all approaches. Sufficient parking should provide for both those leaving their cars for bus services and the strictly transient users. Inside should be a graphic display for orientation to recreational opportunities, the location and scope of various services, and the bay lakes region. The display should be geared toward providing a taste of the various programs offered at the other State Lake sites. Brochures or guidebooks should be made available, along with vending machines, toilets, and staff to answer questions and provide assistance.

A second important improvement to park facilities is made through the interpretive program. Due to the significance of the

Bladen Lakes region from scientific and educational viewpoints there is justification for the development of an Interpretive Center. The Center would contain exhibits and graphic displays describing the theories and characteristics of the bay lakes geomorphology and provide auditorium, meeting, and laboratory space. Both Singletary Lake and Jones Lake represent good sites for its location. The mess hall at Singletary Lake is adaptable, in good condition, and appropriate in appearance. Utilizing the mess hall would require an adjustment in the group camp including providing other mess hall facilities and, most likely, relocating the cabins. Jones Lake is a better site due to the potential for incorporating both Salters Lake and the State Forest operations directly into the Center's program. Specifically, the site should be located between Jones Lake and Salter's Lake with direct access from N.C. 242.

By providing these two most important facilities early in the development phasing and by providing a better balance of facilities at the park units, in general, a more diverse and interesting range of program options would be available. In the scenario for family recreation, visitors are directed to the Information Center where necessary services would be provided. As

an example, prior to going on to Bay Tree Lake where the family has chosen to stay for the weekend, reservations could be made, directions provided, and program information furnished at the Information Center.

Following breakfast on Saturday, the family (or particular members) may take the bus service from Bay Tree Lake to Jones Lake's Interpretive Center where they will also have a picnic lunch and perhaps go fishing or hiking in the afternoon. Other members of the family may wish to stay at Bay Tree Lake to ski or swim for most of the day. In the evening the family will meet at White Lake to eat dinner and partake of the night life. On Sunday, the family may choose to stay at Bay Tree Lake, going horseback riding or boating, until their departure.

In the family interpretive program, more appropriate overnight accommodations may be the tent and trailer campground at Jones Lake since it is here that the interpretive program begins and, from which tours of Salters Lake and Bushy Lake are organized. The family will spend most of the morning at the Interpretive Center, viewing displays and exhibits and perhaps walk the self-guided forest demonstration trail. In the afternoon they may participate in canoeing or bird watching at Salters

legen	d -
\rightarrow	vehicular movement
	4 hr. time increment
1 -	information center
₩-	interpretive center
0 -	overnight accommodations
S -	services F - Food
Α -	activities

Time - Budget Analysis (existing conditions)

friday	saturday	sunday
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Lake. Sunday would be spent participating in an organized, guided expedition of Bushy Lake which originates at the Interpretive Center.

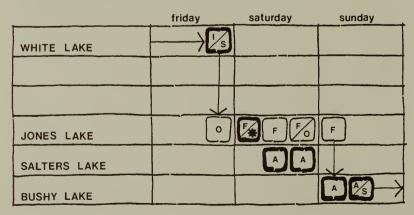
The concept for the State Lakes Master Plan is aimed at providing a better balance and distribution of public use at the park units and providing an increased diversity of program opportunities. The Information Center at White Lake will serve as a

Time - Budget Analysis [family recreation program]

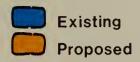
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WHITE LAKE		S	
BAY TREE LAKE	(°)	F O	
JONES LAKE			

facility for visitor orientation and administrative services. An Interpretive Center will be related to the Jones/Salters Lake and State Forest complex and will be the focus of the interpretive program. The future development of park units will be based on the need to provide a complete array of park services through the State Lakes area and limited at each park unit by program classification and site limitations.

Time - Budget Analysis (family interpretive program)



Conceptual Program



Day	Use Ac	tivitie	s		Overnight Administration					4									
Fishing Hiking Horseback Riding	<u></u>	Swimming Unrestricted Boating	Group Shelter	Family Picnicking		Group Primitive Family Tent	Family Primitive	Family Tent & Trailer	Group Cabins	Family Cabins	Road Access	Food Concession	Maintenance Area	Park Office	Amphitheater	Interpretive Station	Interpretive Center	Information Center	Facilities / Activities
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KEY

to map symbols on pages 41, 46, 48, 50, 54, 56, 60













FAMILY PICNICKING



GROUP PICNICKING



GROUP SHELTER



SWIMMING



UNRESTRICTED BOATING



RESTRICTED BOATING



FAMILY CABINS



BOAT DOCK



GROUP CABINS



FISHING



FAMILY TENT & TRAILER CAMP



HIKING



GROUP TENT CAMP



HORSEBACK RIDING



FAMILY PRIMITIVE CAMPING



AMPHITHEATER

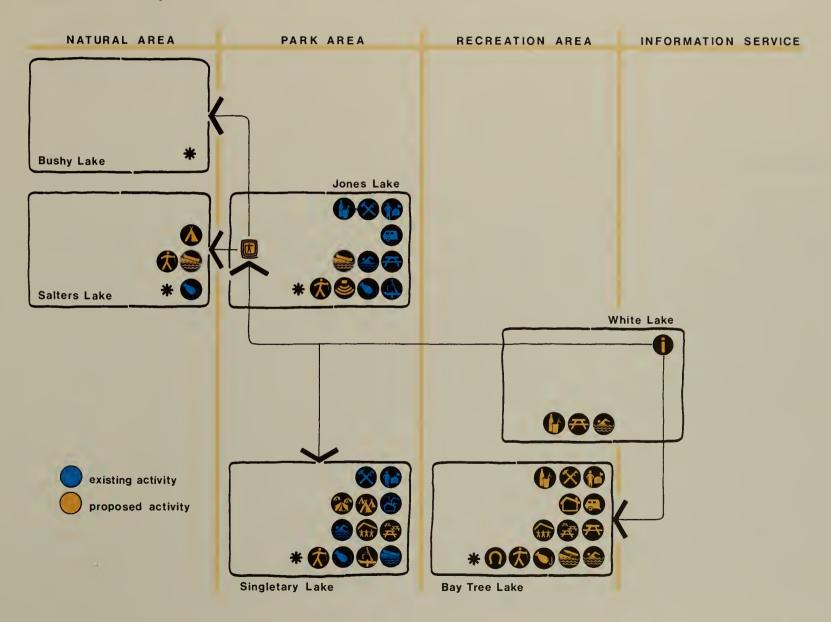


GROUP PRIMITIVE CAMPING



PARKING

Plan Concept



DEVELOPMENT PLANS

General Plan

The general plan for the State Lakes describes a decentralized layout of park facilities linked by the existing public road system. Continuity and focus are provided by the proposed Information Center at White Lake which would also contain the primary administrative functions. Two alternative plans are suggested for White Lake both of which contain the proposed Information Center. Alternative one suggests the establishment of a State Recreation Area providing for strictly day use facilities and requiring acquisition of both road oriented and lakeshore property.

Alternative two suggests the establishment of a Community Park at White Lake. With the exception of the Information Center, responsibility for funding would lie primarily with local agencies.

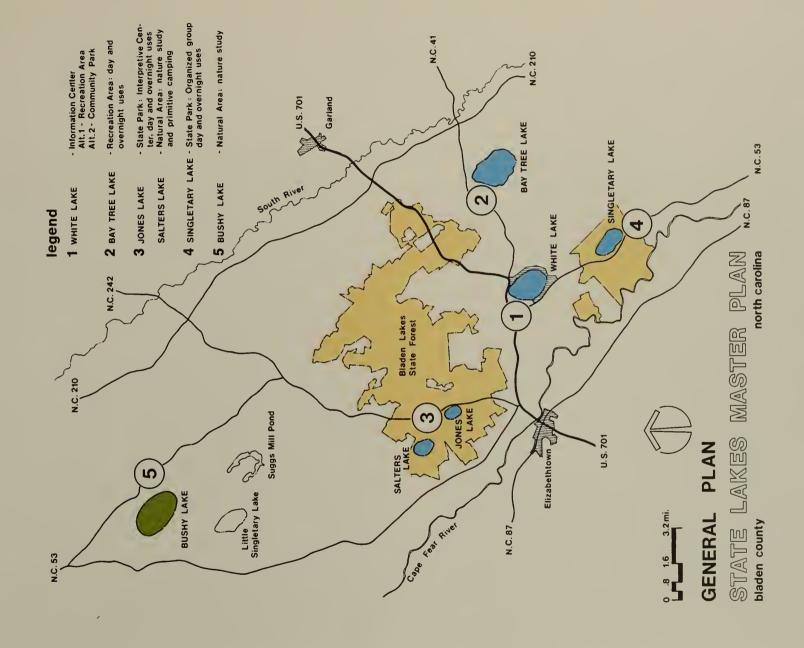
The development of a State Recreation Area is proposed at Bay Tree Lake which would provide a broad range of day use activities and balance of overnight accommodations. The justification for this proposal is based on the need for a facility in the region which provides for more intensive recreational opportunities, the need to offset problems of overuse at White Lake, and the relative availability of land.

It is proposed that the organized group camp be maintained at Singletary Lake. The area should, however, be expanded and managed for increased use by groups. Cabin facilities should be winterized and expanded to allow for use by at least two groups simultaneously and an additional, smaller mess hall must be provided. A broader scope of overnight facilities should be provided at Singletary Lake including group tent camping and primitive camping areas.

Aside from the establishment of the Interpretive Center which has been previously discussed, the primary interest at Jones Lake is in maintaining and improving existing facilities. The primary change to occur over the existing facilities will be the relocation of the boat ramp and restricting use of the lake to ten horsepower motors or smaller. The lake loop trail, presently under construction, will be completed and linked with a new trail to the Interpretive Center complex. New family picnicking facilities will be provided in conjunction with the Interpretive Center.

Continued management for a natural area is recommended for Salters Lake with only minimal development proposals. Road access to the lake will be strictly controlled from the Interpretive Center complex and the existing parking area maintained for a capacity of ten vehicles. The boat launch should remain in its present condition.

Bushy Lake should be managed for strictly controlled access and limited use. Expeditions into the area should be on a permit basis or, otherwise, guided by park staff. The use of Bushy Lake is intended for strictly educational or scientific purposes.



WHITE LAKE

Two alternative plans have been generated for White Lake, both designed for intensive recreational use, both providing for the proposed Information Center. The alternatives differ only with respect to the managing agency and some types of recreational uses. Alternative 1 proposes maximum land acquisition and development as a State Recreation Area managed exclusively by the Division of Parks and Recreation. Alternative 2 suggests a more conservative land area to be acquired and the development of a Community Park jointly by local agencies and the Division of Parks and Recreation.

Information Center

Land acquisition	$25\pm$ acres
Gross building area	1200-1500 sq. ft.
Interior spaces:	·
reception/information area	200 sq. ft.
display area	400-600 sq. ft.
administrative office	300-400 sq. ft.
toilets	200 sq. ft.
refreshment concession	100 sq. ft.
Parking	20 visitor and staff spaces

The primary function of the Information Center is to serve as the central administrative offices for the State Lakes and provide information services for State Lakes users. There are, however, several additional functions which could be considered, aimed to increase the viability and utility of the facility. In addition to providing information relative to State Lake facilities, the Center could also provide information for the location and scope of services offered by the local community, i.e.: alternative accommodations, restaurants, grocery stores, and

forms of entertainment. This added service would go further to satisfying a stated objective: that is, to provide visitors with as complete and efficient an array of program options as possible.

The function of the Information Center can be extended further to improve the overall program objectives by incorporating ancillary services into its physical complex. By making such services available within the Information Center complex the efficiency of a visitor's time spent and distance travelled to these necessary services will be improved. By the same token, the attraction of the Information Center itself will be enhanced. The siting of these services within the Information Center complex is appropriate since the Center also requires the visibility of road exposure.

This concept requires that the Information Center and ancillary services be developed jointly by public and private interests. In order to assure that the project fulfills obligations, and quality control is satisfied, the State should act as principal interest at the outset. Approximately 25 acres should be acquired by the State with approximately two to four acres reserved for the Information Center. The State would prepare an overall site plan, design guidelines, and begin the development of the Information Center building. Approximately six to eight acres would be sold or leased, according to normal bid procedures, to private interests for the development of ancillary services. During the development process the State would maintain a supervisory role in overall site development.

The feasibility of such an arrangement is subject to several considerations including; limitations imposed by the legislature on joint public-private projects, limitations on the resale or lease of land for other than strictly "park" purposes, limitations on the

accruing and disposal of funds resulting from the sale or lease of land, and limitations on particular uses associated with State facilities.

An interpretation of these questions and the proposal, in general, was carried out by the Attorney General's office during the course of the Master Plan study:

- 1. The project could be executed under existing laws with the approval of the Council of State.
- The Division of Parks and Recreation is not limited in the sale or lease of lands for other than "park" purposes provided the instrument by which the State acquires the land contains no limitations as to its use.
- 3. The Department would neither be obligated to make a profit nor prohibited from making a profit on a sale or lease of the property in question. Additionally, a bill enacted by the 1977 legislature amended G.S. 146-30 so as to provide that proceeds from a sale of park land will be retained by the Department rather than reverting to the General fund.
- 4. While State agencies are generally prohibited from maintaining service establishments which are customarily provided by the private sector, G.S. 66-58 (b) (9) exempts the Department from this prohibition.

Not only is the Information Center-Service Center complex an interesting concept from the point of view of integrated public and private programs but also from the viewpoint of revenue production for the Department. Land acquisition at White Lake will be costly. The production of funds from this facility could be utilized for application to land acquisition and capital improve-

ment needs for other State Lake projects. This concept is presented as an alternative to the more traditional approaches to facility development. The proposal for the Information Center is exclusive from the White Lake recreational alternatives so that its development is not contingent on which alternative is chosen. Projected visitation for the Information Center, as previously described, is 167,000 people annually.

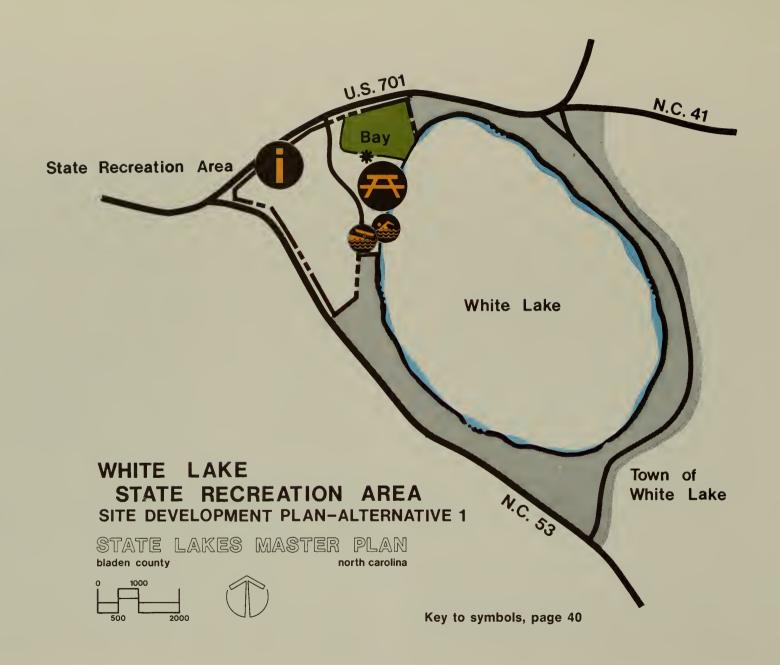
Alternative 1 — State Recreation Area

A State Recreation Area encompassing approximately 300 acres would be located on the northwest corner of White Lake, situated near the intersection of U.S. Highway 701 and N.C. 53. It is proposed to include some 4,000 feet of lake frontage.

The access road would extend into the site about 3,000 feet from its entrance at U.S. 701 with parking located in bays along this road. Parking bays should be double loaded and provide parking for about 70 cars each, or not exceeding 350 feet in length. Adjacent bays should be separated by a minimum 40-foot buffer strip.

The interior part of the site, which is predominately open, lowlying, and poorly drained should be managed for forest restoration. A small portion of this area, about three to five acres located adjacent to proposed parking, should be filled and managed as open space for informal games and leisure sports.

On the opposite side of the access road, toward the lake, 10 to 20 acres would be developed as a family picnic area. A minimum of 80 to a maximum of 160 picnic tables would be provided. Directly north of the picnicking area an existing forest area occupying about 50 acres would be maintained as a natural area. An interpretive shelter would be located at the



edge of the picnic area and mark the entrance to a one-half mile boardwalk loop trail extending into the forest.

The access road would terminate at the parking area for the swimming beach and fishing pier. A bathhouse with refreshment concession would be located between the parking area and beach. This portion of lakeshore would be developed as a sand beach extending for 800 to 1,000 feet in length by 50 feet wide. The entire swimming area including bathhouse, beach, and water area would be designed to accommodate a maximum of 800 people during peak hours. Adjacent to the swimming beach and designed to serve both swimmers and fishermen, may be a pier extending into the lake about 300 feet. The general development program for Alternative 1 suggests an annual visitation range between 76,000 and 124,000 people.

Alternative 1 - State Recreation Area

Land acquisition 300± acres

Family Picnic Area

80-160 tables/10-20 acres

Parking: 80-165 spaces

Swimming Area

Bathhouse

Beach: 800-1000 lin. ft. x 50 ft. wide

Parking: 150-200 spaces

Fishing Pier

300 ft. in length

Parking: 25 spaces

Interpretive Shelter

200 sq. ft.

Interpretive Trail

3,500 lin. ft.

Parking: 25 spaces

Informal Open Space

3-5 acres

Ranger Residences

3 proposed

Alternative 2 - Community Park

A Community Park developed and managed by local government is proposed as an alternative to a State Recreation Area. Although the Information Center would be provided by the State as suggested for Alternative 1, the proposed land area would be reduced for the park area to about 150 acres. The existing forest area and some of the interior low lying land and road frontage have been deleted as proposed land acquisition.

Alternative two is the preferred plan for White Lake. The urban condition of the site and localized demand for high intensity recreational facilities are the principal criteria for this choice.

Following is a general listing of suggested facilities for a community park:

Alternative 2 - Community Park

Land acquisition $150 \pm \text{ acres}$

Suggested facilities:

Family and group picnicking with shelters

Swimming area: beach, bathhouse, and

refreshment concession

Tennis courts

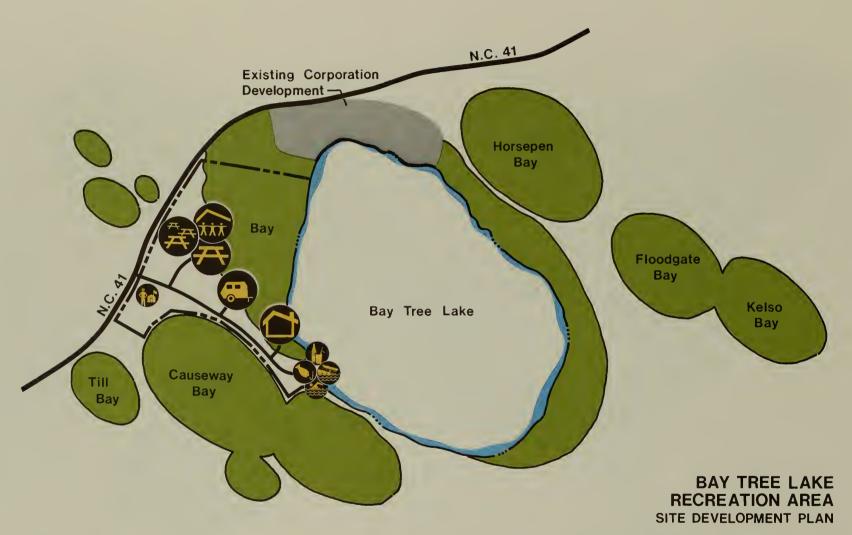
Children's playground

Recreation building/Community Center

Informal open space







STATE LAKES MASTER PLAN bladen county north carolina





Bay Tree Lake State Recreation Area

Bay Tree Lake would serve as a full-fledged State Recreation Area with complete day use and overnight facilities. Water oriented recreation will be the primary emphasis. The proposed site is situated on the west side of the lake, and includes about 570 acres, none of which is currently state-owned. The projected number of visitors is 136,000-187,000 per year upon completion of all proposed facilities.

Access will be provided off of N.C. Highway 41 about one and one-half mile west of the existing entrance to the Bay Lakes Corporation Development. Entering the recreation area on the main access road, visitors will initially come upon the park office where information and brochures will be available. Behind the office, a maintenance area will be located with a warehouse, workshop, and garage.

The focal point of the Bay Tree State Recreation Area will be the lakeshore facilities. A 1000-1200 linear foot beach will provide ample room for extensive swimming, wading, and sunbathing. Staff lifeguards will serve a protected portion of the beach-swimming area. Also included will be a major bathhouse facility with a refreshment concession, and adjacent parking.

Nearby will be the boat launch area and fishing pier, complete with a bait/tackle concession for fishermen. Three to four boat ramps will serve the launch area with nearby parking for vehicles and boat trailers. Boat sizes and types will be unrestricted. The fishing pier will probably have to be at least 500 feet long due to the extremely flat gradient of the lake bed.

A small family picnic area with a maximum of 48 tables will also be located near the lakeshore development area. Half of the tables will be situated within small two-table picnic shelters.

A large family picnic area with adjacent parking will be located in the interior of the park with up to 96 tables. In close proximity, a 1½-2 acre field will provide informal open space for picnickers.

Group picnicking facilities will also be provided within the park interior. Shade trees will protect between 64 and 96 tables which shall be grouped in clusters of varying sizes. Eight tables will be situated in each of two 64-person group shelters. Three to four acres of open space will provide informal recreation opportunities. All of the picnic areas will have outdoor grills, toilet and other sanitary facilities.

Also located in the park's interior, the family tent and trailer campground will provide two to three loops of 40 sites each. Every site will have its own pull-off with grill and tent pad. Each loop interior, will have its own washhouse serving about 40 campsites.

North of the swimming beach, 24-48 rustic family vacation cabins will be situated on or near the waterfront. Relatively small, these cabins will range in size from two-four rooms. Included will be one or two bedrooms, a living room, and an efficiency kitchen. No sophisticated furnishings are intended. Although the cabin colony access road and cabins may require some fill and/or stilt foundations, this proposal is expected to alleviate demand for a facility type which is in short supply within the N.C. State Park System.

The Bay Lakes Corporation has indicated plans to develop horse trails throughout their project. Considering the compatibility of this type of use with park objectives, it would be prudent to develop a trail system within the recreation area which will be linked to the Corporation's trail system. Access to the horse trails will be provided at the primary family picnicking area.

An interpretive shelter and loop trail will be developed, possibly to interpret the influence of man in changing the physical character of the bottom and edges of Bay Tree Lake, as well as improving the water quality.

Utility planning for the recreation area should consider the potential of connecting the sewage disposal system with the existing Bay Tree Lakes Corporation treatment system.

Bay Tree Lake State Recreation Area

Land Acquisition - 570± acres

Park Office and Maintenance Area

Parking: 20 spaces

Lakeshore Activities Area

Swimming Beach

Beach: 1000-1200 linear feet x 50 feet wide

Bathhouse/Refreshment Concession

Parking: 186-225 spaces

Picnic Area

32-48 tables/4-6 acres
8-12 two-table shelters

Boat Launch Area

3-4 ramps with loading/unloading docks
Parking: 90-120 spaces (vehicles with trailers)

Fishing Pier

500 feet in length Parking: 25 spaces

Main Picnic Area

Family Picnic Area 64-96 tables/8-12 acres 1½-2 acres informal open space Parking: 64-96 spaces

Group Picnic Area

64-96 tables/4-6 acres

(2) 60 person shelters

3-4 acres informal open space

Overnight Facilities

Tent and Trailer Campground 2-3 loops, 40 sites each/20-30 acres

Family Cabin Area 24-48 cabins

Parking: 36-72 spaces

Tralis

Horseback Riding Trails - 2 miles Interpretive Trail - ½ mile Interpretive Shelter - 200 sq. feet.

Ranger Residences

5 proposed



Singletary Lake

Singletary Lake will continue to serve as an organized group camp. However, expanded facilities and management policy modifications will substantially increase the opportunities afforded park users. A variety of overnight group facilities will be offered, rather than simply the group cabins. In addition, group day use facilities will be introduced. Projected annual visitation is 56,000-75,000 persons per year upon completion of the proposed facilities.

The park office, maintenance area, and ranger residences will remain in their present locations. The existing cabins and mess hall will also remain. However, the latter facilities should be winterized. Additional cabins and another smaller mess hall will provide cabin accommodations for at least two different groups (one large, one small) simultaneously.

It is proposed that up to two group tent camps and three to four group primitive camps be established at Singletary Lake. No suitable land exists, however, for these facilities within the present park boundary. In order to avoid the need to acquire private property for these purposes, it is suggested that the camping areas be located within the State Forest Area. Since these would be essentially primitive facilities, sites may be rotated in accordance with Forest management schedules. Access to the primitive camps will be strictly by hiking from a designated parking area near the park office. In the meantime, an interim group tent camp will be established to the east of the existing mess hall with a temporary parking area just off the main entrance road, opposite the office/maintenance area. Each camp will have its own informal open space of one to two acres.

Perhaps the most significant proposed facility is a group picnicking area for day users. The focal point for this area will be a large 150-person capacity picnic shelter which will be available to larger groups on a reservation basis. Two smaller shelters accommodating 24 persons each will serve relatively small groups on a first come-first serve basis. Located adjacent to the picnic area will be 1 1/2-2 acres of informal open space.

All of the aforementioned use facilities will be served by common water-based recreation facilities. The existing pier and designated swimming area will be opened to use by all group day and overnight users. Staff lifeguards will eliminate the need for groups to provide their own lifeguards. A bathhouse will serve all swimmers. In addition, canoes and rowboats will be made available to all groups. A boathouse will be located near the pier. Any use of motorized boats should be limited in size to a maximum of 10 horsepower motors.

The Turkey Oak Natural Area provides outstanding opportunities for the development of interpretive trails and shelters. Besides the turkey oak - sand ridge association, the natural area also includes a portion of bog-bay community and bay-sand ridge ecotone with numerous venus flytraps and other interesting plant life. A canoe trail along the lakeshore will offer additional interpretive potential.

A single common parking area near the existing mess hall will serve all the existing and proposed facilities except the tent camps.

After development of additional facilities at Singletary, boat launching will be phased out.



Singletary Lake Group Camp

Park Office and Maintenance Area (existing)

Group Cabin Camp

Existing Cabins (88 person capacity)
Proposed Cabins (44 person capacity)
Existing Mess Hall (88 person capacity)
Proposed Mess Hall (44 person capacity)
1½-2 acres informal open space (each camp)

Group Tent Camps

1-2 camps (50 person capacity each)/1-2 acres each 1 interim camp (50 person capacity)/1-2 acres 1½-2 acres informal open-space (each camp)

Group Primitive Camp

3-4 camps (50 person maximum capacity each)/1-2 acres each

1½-2 acres informal open space (each camp)

Group Picnic Area

48-64 tables/3-4 acres
1 large shelter (150 person capacity)
2 small shelters (24 person capacity)
1½-2 acres informal open space

Waterfront Activity Area

550 foot pier (existing)
Boathouse with 6 canoes, 8-10 rowboats
Swimming Area (existing)
Bathhouse

Trails

Hiking Trails - 2 miles Interpretive Trail - 1 mile Interpretive Shelter 200 square feet

Ranger Residences

2 existing





Jones Lake State Park

Jones Lake will remain as a State Park with both day use and overnight facilities. The only major change is the addition of an Interpretive Center. Virtually all existing park facilities will be maintained. Surrounded by State Forest land, no additional park land acquisition is proposed. Projected annual park visitation is 88,000 to 90,000 persons.

The existing office and maintenance area, consisting of a park office, personnel barracks, storage shed and garage will be maintained at their present location. However, a new storage building in the vicinity of the existing maintenance area is proposed. In addition, one new ranger residence is proposed beside the existing residence.

Existing day use facilities include a 234-car parking lot, a 200-linear foot beach, refreshment concession, pier, bathhouse, boathouse with 12 rowboats, 85 picnic tables, a picnic shelter (80 person capacity), and a semi-permanent boat ramp. All will be maintained in their present location except for the boat ramp which will be relocated several hundred feet south, away from the picnic shelter. Upon completion of alternative boating opportunities at Bay Tree Lake, boats will be restricted to 10 h.p. on Jones Lake.

New facilities will be primarily concentrated about the proposed Interpretive Center on the north side of Jones Lake within sight of N.C. Highway 242. Located on a $25\pm$ acre site on Forest Service property, the Center is intended to serve a dual interpretive function for both the Division of Parks and Recreation and the Division of Forest Resources. It will also serve an information and control function for Salters and Bushy Lakes.

Responsibility for construction and operation of the Center will be delegated primarily to the Division of Parks and Recreation.

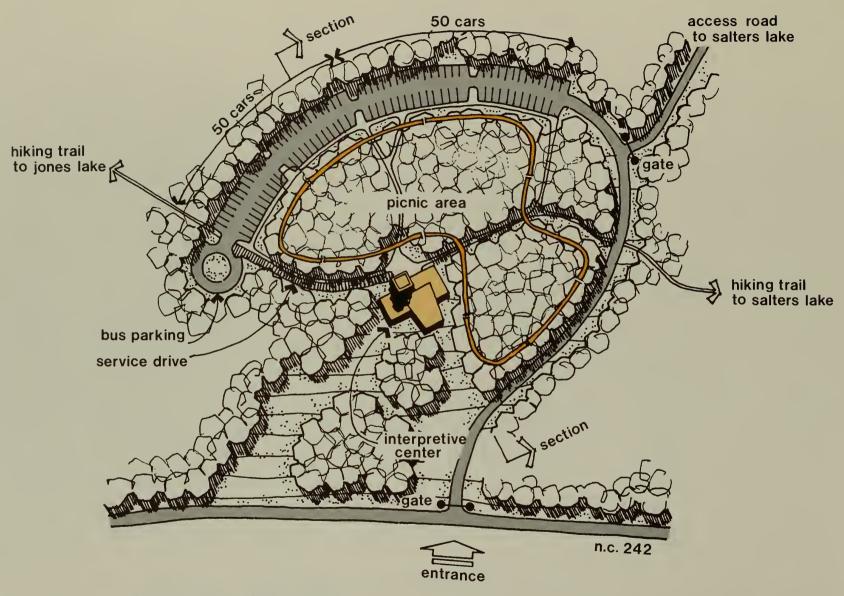
The primary interpretive theme will be the origin and geomorphology of the Carolina Bays along with the ecological communities associated with them. The secondary interpretive theme will be forest management techniques and/or natural and cultural forestry. Various exhibits and multi-media presentations will illustrate the Center themes.

Interpretive trails will emanate from the Center to both Jones Lake and Salters Lake, the swamp forest in between, and around Jones Lake Bay, intercepting the existing trail system. Interpretive shelters will be strategically located. Other trails will traverse through a demonstration forest where visitors can observe various management techniques in the field.

Another proposal involves the construction of a visitor observation platform to be incorporated into the Interpretive Center. Properly designed and constructed, this platform could serve a dual function as a fire control tower, replacing the existing tower at the Forest Service headquarters just down the road.

Associated with the Interpretive Center will be a 100-person capacity outdoor amphitheatre for interpretive talks and shows, as well as a small 25-table picnic area. The Interpretive Center and picnic area, as well as the family primitive camps at Salters Lake, will be served by a single parking area near the Center.

Although current demand does not warrant expansion of the tent and trailer campground at Jones Lake in the near future, the potential does exist. Should demand significantly increase, a small loop comprised of 20-30 sites on the west side of the existing campground is possible.



Schematic Site Plan Interpretive Center

Jones Lake State Park

Land Acquisition - None; Interpretive Center site agreement with N.C.F.S. is necessary.

Park Office and Maintenance Area (existing)

Waterfront Activity Area

Swimming Beach - 200 linear feet (existing)

Bathhouse (existing)

Refreshment Concession (existing)

Boathouse - 12 rowboats (existing)

Pier (existing)

Picnic Area - 85 tables (existing)

Picnic Shelter - 10 tables (existing)

Boat Ramp (to be relocated)

Parking - 234 spaces (existing)

20 vehicle and trailer spaces required for relocated boat ramp.

Interpretive Center

Gross Building Area - 2000-3000 sq. ft.

Interior spaces:

Reception/Information Area 100-200 sq. ft.
Auditorium 800-1200 sq. ft.
Display Area 400-700 sq. ft.
Administrative Office 300-400 sq. ft.

 Lab
 100-200 sq. ft.

 Storage
 100 sq. ft.

 Toilets
 200 sq. ft.

Observation Platform

Outdoor Amphitheatre - 100 person capacity

Picnic Area - 25 tables/3 acres

Parking - 60-90 spaces (including 20 spaces for family primitive camps at Salters Lake)

Family Tent and Trailer Campground

18 sites (existing)

20-30 proposed sites/5-8 acres

1 washhouse (existing)

1 new washhouse

Trails

Jones Lake Loop Trail - 21/2 mi. (existing)

Hiking Trail - 2 mi.

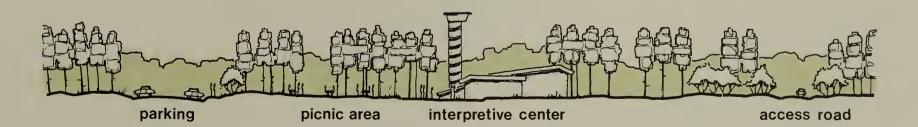
Interpretive Trails - ½-1 mi.

Forest Demonstration Area Tralls - 2-4 mi.

Residences

2 existing

1 proposed



Section View of Interpretive Center



STATE LAKES MASTER PLAN bladen county north carolina

Key to symbols, page 40

Saiters Lake State Natural Area

Salters Lake and its namesake bay would be designated as a State Natural Area, to be administered by Jones Lake State Park personnel. As such, only interpretive trails and facilities will be permitted within the designated area. Any other facilities must be restricted to the surrounding sand rim. Access and control will be provided through the proposed Interpretive Center. No additional acquisition is proposed. Annual visitation is expected to be about 15,000-20,000 persons.

A small boat launch with an undefined parking area on the rim of Salters Lake Bay is the only facility on or near the Lake. The launch area and access road will be maintained. However, the use of motors of any type on boats launched into Salters Lake will be prohibited. The parking area will be improved to a capacity of 8-10 vehicles with trailers.

Two family primitive camps of 10 sites each will be developed on the sand rim on the Lake's east side. Access will be strictly by hiking trail from the Interpretive Center at Jones Lake, where parking spaces for primitive campers will be provided.

The trail to the primitive camps will also serve as a connector trail to a self-guided interpretive trail which will make a loop from the primitive camping area to the lakeshore and back. On the Lake itself, an interpretive shelter and overlook will be constructed. A self-guided canoe trail around the lakeshore will provide additional interpretive opportunities.

Saiters Lake State Natural Area

Land Acquisition: None

Boat Launch Area

Maintain existing launch
Improve parking - 8-10 vehicle and trailer spaces

Family Primitive Camp

2 camps, 10 sites each Water and Sanitary Facilities

Trails

Hiking Trails - 1 mi. Interpretive Trail - ½-1 mi. Canoe Trail - 2½ mi.

Bushy Lake State Natural Area

Like Salters Lake, Bushy Lake will be designated as a State Natural Area and administered from Jones Lake. However, controls will be even more stringent. All visitors will be required to obtain permits or be guided through the area by a park ranger-naturalist. No facilities other than interpretive related ones are proposed.

Existing state-owned acreage is 1007 acres, with 1000-1400 more acres proposed in order to incorporate the entire bay and sand rim within the designated natural area. Projected annual visitation is 3000-6000 persons.

The primary features to be interpreted will be the multiple rims, "high" and "low" bay vegetation, and the small bog pond on the southeast side of Bushy Lake Bay. Accordingly, a boardwalk from the primary rim to the pond is proposed, along with an observation platform overlooking the pond and surrounding bog-bay.

A small parking area for about 10 vehicles will be located on the southeastern side of the bay on the primary sand rim. Access will be provided via S.R. 1002.

Bushy Lake State Natural Area

interpretive Facilities

Interpretive Trail - ½ mile, including boardwalk Interpretive Shelter Observation Platform.

Parking: 10 spaces

State Scenic Rivers and Trails Potential

As discussed in the section on Recreation Features and Public Lands, the South River and Black River flowing southeast from the U.S. 701 crossings, have been nominated for inclusion in the State Natural and Scenic River System. There are at least two existing points of public access along the South River which could be incorporated into a scenic river proposal and partially offset the need for any new public access facilities along the river.

Related to the State Lakes area there is good potential for establishing a system of state trails linking one or more park areas to the South River. This potential is enhanced particularly by the extent of land covered by the Bladen Lake State Forest and existing or abandoned roads within the Forest which could serve as trails. While this road system is quite lengthy the layout of new trails will be limited by large areas of wetland or bog. The feasibility of utilizing any State Forest lands for trails will be determined, in large part, by the Division of Forest Resources and the compatibility of trail proposals to State Forest operations and management.

As it relates to the State Lakes Master Plan the most desirable and practical trail link between the South River and State Lakes area would be from Jones Lake across State Forest lands, moving northeast, to the Wildlife Access Area at U.S. 701. Such a trail would extend for about fifteen miles with approximately two and one-half miles requiring corridor agreements over private lands. In addition to the potential use of existing public lands for this trail, it is a desirable route also in terms of length (an adequate day hike) and destination. It is appropriate that such a trail emanate from the Interpretive Center (with primitive camping facilities available near Salters Lake) and tie into the scenic river corridor.

Unless demand studies indicate otherwise in the future, few other trail linkages appear to be warranted at this time due to significant expenditures which would be likely required for access agreements. The Jones Lake - Salters Lake link is obviously an exception. Also, access agreements for trails may be available from timber companies which own considerable land especially west and south of Bay Tree Lake. Further study may indicate the feasibility of a Singletary Lake - Bay Tree Lake connector or Bay Tree Lake - State Forest link in the future.



ADMINISTRATIVE POLICIES

Use Area Classifications

Early in the development process, the six park areas should be officially designated according to the following policy classifications:

White Lake - Information Center
Bay Tree Lake - State Recreation Area
Singletary Lake - State Park Group Camp
Jones Lake - State Park Area

Salters Lake - State Natural Area
Bushy Lake - State Natural Area

These designations are, together with the master plan, intended to maintain consistent management and development policies for each lake area. While future development programs may vary from those suggested in the master plan, these variations and new programs should be conducted within the framework established by these policy classes.

Services to Park Users

Visitor information, reservations and camping permits will be administered principally from the Information Center at White Lake. These services, as they relate to the individual units, will be available from the park offices at Bay Tree Lake, Singletary Lake, Jones Lake, and the Interpretive Center.

An inter-park bus transport service is proposed. This service should emanate from the Information Center at White Lake and

provide access to Bay Tree Lake, Jones Lake Day Use Area, and Jones Lake Interpretive Center. Preferably, two buses having capacities of thirty persons each should operate on a regular, continuous schedule during the peak season. Since a principal purpose of the master plan is to redistribute use from White Lake, and to otherwise create a better balance of visitor use at other park areas, this service is particularly important.

Surveillance and Maintenance

Existing programs relating to park security, visitor protection, and fire prevention which are presently in operation at Jones Lake State Park, Salters Lake, and Singletary Lake Group Camp will be maintained and instigated in the new park areas as they become developed. Park patrolling will occur both by foot and mobile units equipped with two-way radios. As development of the Master Plan progresses and sites made more accessible, patrol of public land and facilities will become increasingly important. In particular, surveillance of Salters Lake and Bushy Lake will be required more frequently. Boundary markers, gates, and signs are likely to require more frequent maintenance and regulations will be more difficult to enforce. Unlike other park areas, poaching is likely to be a particular problem at Salters Lake and Bushy Lake.

The Master Plan indicates that the maintenance areas at Jones Lake and Singletary Lake are to be continued and a new maintenance area provided at Bay Tree Lake during its third phase of development. Prior to this time, maintenance activities at Bay Tree Lake will be provided from Singletary Lake. Maintenance of the proposed Interpretive Center area, Salters Lake, and Bushy Lake will emanate from Jones Lake State Park. Maintenance requirements of the proposed Information Center at White Lake could be provided either from Singletary Lake or the new maintenance area at Bay Tree Lake, when it becomes operational.

Staffing

An outline proposal for staffing the State Lakes complex follows based on the proposed development phasing and the assumption that Alternative 1 (State Recreation Area) is implemented at White Lake.

It is strongly recommended that an administrative proposal be developed which is directed toward a regional supervision concept. Such a proposal would be aimed particularly at areas where there is a collection of management units such as the State Lakes. For continuity throughout the system, however, the concept of regional supervision must be developed on a statewide basis.

During Phase II of the plan an additional position of Superintendent II is proposed for White Lake. The individual filling this position would act as a coordinator of the park complex. He

would also be the line supervisor of other superintendents at the individual park sites assisting in administration, maintenance, scheduling, budget, operations, and general management for the State Lake units including Lake Waccamaw.

Phase I

*White Lake	-	Ranger	II and	Support
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*Bay Tree - Ranger I and Seasonal Park Attendant

Singletary Lake

Group Camp - Ranger I and Seasonal Park Attendant

Phase II

White Lake - *Superintendent II

Clerk Typist II

Bay Tree - *Park Superintendent I

*Ranger II
*Ranger I

*General Utility Technician
2 Seasonal Park Attendants

1 Seasonal Naturalist

Labor Support Seasonal Concession/

Facility Personnel

Jones Lake - *Ranger Naturalist and Support

Singletary Lake - *General Utility Technician

^{*}Indicates proposed permanent positions.

Development Phasing

Phase One

White Lake

Land acquisition - 25± acres
Construct Information Center complex

Bay Tree Lake

Land acquisition - 570± acres

Singletary Lake Group Camp

Construct washhouse at Swimming Area Begin boat rental:

6 canoes, 8-10 rowboats
Develop 2-3 acres at Group Picnic Area
Construct interpretive shelter and related trails
Develop 1-1½ acres informal open space
Open interim Group Tent Camp

Jones Lake State Park

Construct Interpretive Center complex and related trails Relocate boat ramp

Phase Two

White Lake (assuming Alternative 1 - State Recreation Area)

Land acquisition - 300+ acres

Bay Tree Lake

Construct Park Office

Construct beach and bathhouse at Swimming Area

Develop entire picnic area at lakeshore

Construct refreshment concession

Construct fishing pier and bait concession

Construct 2-3 boat ramps

Develop 3-4 acres of informal open space

Develop 11/2-2 acres at Group Picnic Area

Construct 1-2 loops at Family Tent and

Trailer Camping Area

Construct 24 Family Cabins

Construct interpretive shelter and related trails

Singletary Lake Group Camp

Construct boathouse

Construct large, group picnic shelter

Saiters Lake

Designate State Natural Area

Make improvements to parking area

Develop Family Primitive Camp

Construct interpretive shelter/overlook and related trails

Bushy Lake

Land acquisition - 400-600 acres

Phase Three

White Lake

Construct beach and bathhouse at Swimming Area Construct refreshment concession Develop 8-10 acres at Family Picnic Area Construct interpretive shelter and related trails Develop 3-4 acres of informal open space

Bay Tree Lake

Construct maintenance area Develop 4-6 acres at Family Picnic Area Develop 1½-2 acres at Group Picnic Area and 1 shelter

Singletary Lake Group Camp

Construct 2 small group picnic shelters Expand Group Cabin Area; construct new mess hall Develop 2 Group Tent Camps (close interim facility) Develop 2 Group Primitive Camps Develop hiking trails

Bushy Lake

Land acquisition - 400-600 acres
Designate State Natural Area
Develop parking area
Construct interpretive shelter/observation tower
and boardwalk trail

Phase Four

White Lake

Develop 8-10 acres at Family Picnic Area Construct fishing pier

Bay Tree Lake

Construct 1-2 boat ramps
Develop 4-6 acres at Family Picnic Area
Develop 1½-2 acres at Group Picnic Area and 1 shelter
Construct 24 Family Cabins
Develop 1-2 acres of informal open space

Singletary Lake Group Camp

Develop Group Primitive Camp

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CREDITS

Planning Team:

Bradley W. Davis, Landscape Architect J. Stephen Weaver, Landscape Architect

Supervisors:

Alan R. Eakes, Chief Landscape Architect Frederick P. Hagenberger, Landscape Architect

Acknowledgements:

James S. Stevens, Jr., Acting Director
Thomas R. Wells, Regional Manager for Eastern Operations
Tommy R. Wagoner, Former Superintendent,
 Singletary Lake Group Camp
Dewitt Powell, Superintendent, Jones Lake State Park
Homer L. Woodell, Superintendent,
 Singletary Lake Group Camp
H. Scott Bolin, Natural Science Museums Curator
Nelson W. Chadwick, former Regional Naturalist
James Martin, Superintendent, Fort Macon State Park
Dr. Robert P. Teulings, Natural Areas Coordinator
Carolyn Van Hoy, Drafting Technician
Alice Jones, Clerk - Typist III

